The Oil and Gas Journal

PUBLISHED WEEKLY BY THE PETROLEUM PUBLISHING COMPANY AT TULSA, OKLAHOMA

HOME OFFICE, 211 S. CHEYENNE, TULSA
PHONE 3-6291

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SUBSCRIPTIONS: United States, 1 year, $6.00; 6 months, $3.00. Elsewhere, 1 year, $7.00; 6 months, $3.50. SINGLE COPIES: 30 cents each. Back copies, when over a year old, 50 cents. CHANGES OF ADDRESS reaching the Tulsa office of the Journal by Saturday take effect with the following issue.

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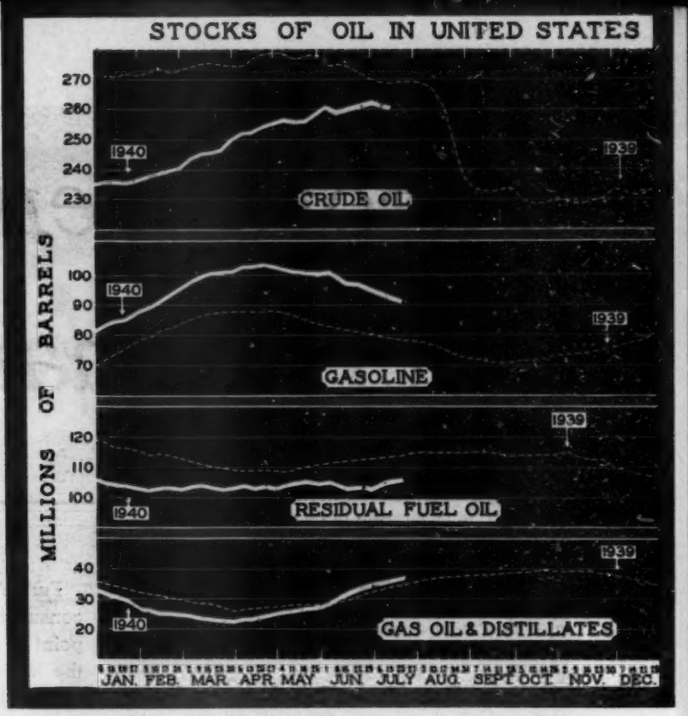
A "GOOD" CEMENT JOB WILL STAND *TWO* TESTS

BAKER CEMENT WASH-DOWN WHIRLER FLOAT SHOE

Trends

Reduced Operations In Refineries and Fields Aid Markets



WHETHER or not the recent reductions in production and refinery operations would be effective in preventing a threatened general reduction in crude-oil price schedules of several states, was an unanswered question the first of the week. The market crisis is the result of conditions clearly outlined in the review data contained in this Semiannual issue. The reports for the 6-month period show that producers and refiners consistently overproduced outlets which were larger than any similar period of the past. Large additions were made to crude stocks and gasoline inventories were excessive throughout the entire period.

CRUDE PRODUCTION *3,576,872 bbl. daily average—up 12,888 bbl. One year ago 3,585,172 bbl.*

CRUDE STOCKS *260,994,000 bbl. as of July 13—down 738,000 bbl. One year ago 268,119,000 bbl.*

GASOLINE STOCKS *91,789,000 bbl. as of July 20—down 583,000 bbl. One year ago 78,789,000 bbl.*

RESIDUAL FUEL-OIL STOCKS *105,864,000 bbl. as of July 20—up 154,000 bbl. One year ago 114,406,000 bbl.*

GAS OIL AND DISTILLATES *37,504,000 bbl. as of July 20—up 1,283,000 bbl. One year ago 34,000,000 bbl.*

REFINERY RUNS 3,540,000 bbl. daily week ended July 20—down 25,000 bbl. One year ago 3,385,000 bbl.

The outstanding market result has been a steady decline in gasoline prices, extending from the plants to the filling stations, which over the past month have reached the lowest levels in 7 years. This gasoline-market situation was responsible for the reductions by important buyers last week in the crude schedules of North Texas.

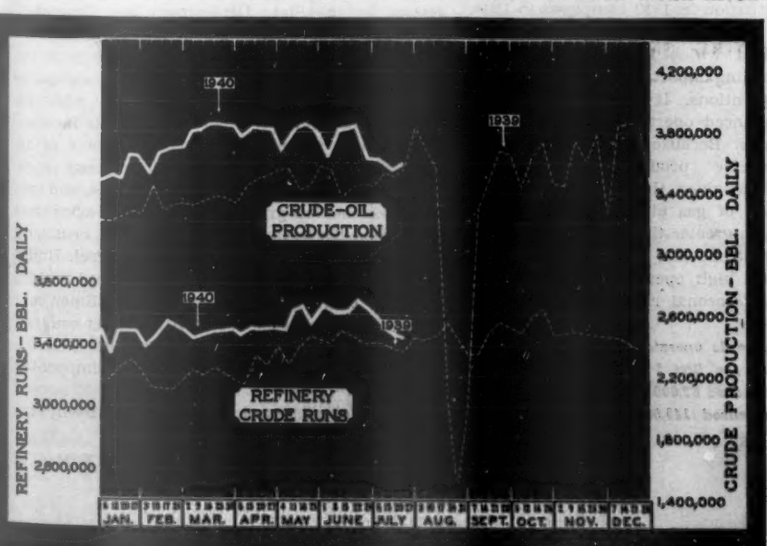
Efforts are being made to prevent a general acceptance of these lower schedules in North Texas and elsewhere and there were indications of success the first of the week. The reductions in crude production since the first of the month have reversed the several-month trend in which inventories steadily accumulated. Less crude is being run to stills in several areas and this has tended to correct a situation in which current production and stocks were being dumped on the market with little regard to price.

While there has not been any general upturn in gasoline prices, the downward trend has been stopped at most points. Market students agree that a continuance of current operating levels with no further decreases in export shipments, will result in a greatly improved statistical position for gasoline before the end of August, a development which should be reflected in markets. These market observers state that developments in both crude-oil and gasoline markets are entirely dependent on the duration of the recent curtailment in operations. A return to peak operations of the first 6 months in the near future, they predict, will mean that the needed recovery in gasoline prices will not materialize, and additional support for lower crude prices will develop.

A decline of 40,000 bbl. daily in Illinois basin production within a period of 3 weeks, is helping the week crude situation which centers in Texas and Louisiana. All the excess crude in Illinois has been absorbed and important producers and buyers explain that they could dispose of additional quantities at posted prices if the supplies were available. All indications now point to a tight crude-oil market in Illinois over the remainder of the year.

DAILY AVERAGE PRODUCTION FOR WEEK

	July 20, 1940	Bur. Mines July est. of demand	July state allowables	July 13, 1940
Arkansas	72,455	67,400	71,300	72,375
California	617,500	593,900	587,000	623,250
Eastern states	104,600	103,100	.....	105,750
Illinois	464,116	402,300	.....	486,025
Kansas	189,950	159,400	159,400	178,200
Louisiana	285,964	278,100	280,731	281,975
North Louisiana	67,840	.....	.....	65,425
Louisiana Gulf Coast	218,124	.....	.....	216,550
Michigan	54,096	61,600	54,000	54,163
Mississippi	7,100	9,700	.....	6,158
New Mexico	105,880	106,100	106,100	105,880
Oklahoma	414,525	403,900	408,100	411,575
Rocky Mountain states	92,650	103,500	.....	95,300
Texas	1,168,036	1,339,400	1,236,740	1,143,333
East Texas	374,895	.....	.....	374,746
West Texas	181,986	.....	.....	179,045
North Central Texas	112,918	.....	.....	112,950
Texas Panhandle	66,015	.....	.....	59,348
East Central Texas	71,690	.....	.....	70,496
Texas Gulf Coast	284,145	.....	.....	272,800
Southwest Texas	76,387	.....	.....	73,948
Total United States	3,576,872	3,628,400	.....	3,563,984



Record Demand in Prospect Over Remainder of Year

By C. O. WILLSON

A RAPIDLY changing European war scene, trade agreements affecting imports, variations in rate of increase in domestic markets, and failure to balance crude production and refinery operations with demand, brought important developments to the petroleum industry the first 6 months of this year. They are reflected in the present statistical position of the industry and will continue to be the controlling factors in operations over the balance of 1940.

Reports in this Semiannual Issue reveal how these changing and often opposing developments have influenced operations from the drilling of wells to the prices paid by consumers for the finished products. Without going into the statistical details and analysis, which are available elsewhere in this issue, the writer discusses here the general developments of the first half year in relation to probable trends in the industry's operations over the balance of this year and later.

In demand, the petroleum industry continued to expand the outlets for most of its products with one of the largest 6-month increases in its history. While the war brought restrictions in some of the important markets outside the United States, available information indicates that world consumption of petroleum exceeded that of any similar period. Important gains were reported throughout the Western Hemisphere.

Aided by a 25 per cent increase in new-car sales —a rate of increase which got under way as soon as the 1940 models were introduced last fall—gasoline consumption established another all-time peak for the first half of the year, an increase of 7 per cent over the same period last year and 60 per cent greater than the predepression peak of 1929. A larger percentage sale of trucks, buses, and other commercial vehicles and favorable business conditions which tend to increase gallonage per motor vehicle were additional factors in bringing about the record consumption.

THE LAST HALF

Further increases in the domestic consumption of petroleum products point to a record demand for crude oil the last half of this year.

Imports which increased more than 40 per cent the first 6 months probably will continue at present levels.

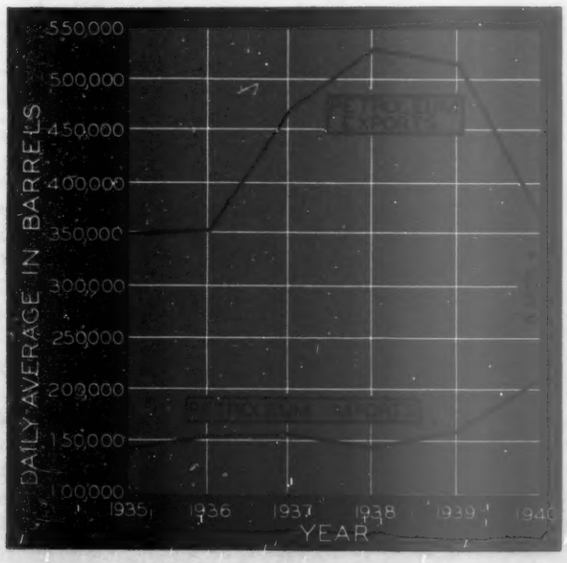
While the actual demand for domestic crude oil will increase over the first half year, production should be reduced in order to prevent additions to storage.

Refinery operations should be adjusted to provide for greater yields of the intermediate products and a reduction in excessive gasoline stocks.

Exports at the start of the last half year are approximately 50 per cent less than a year ago. An early peace probably would bring more normal export movement before end of the year.

Semiannual Features

All phases of oil developments during the first 6 months are discussed in this Semiannual Issue. In addition to the articles appearing on Pages 52-57 a special section starts on Page 76.



Domestic operators lost important markets the first 5 months when imports increased 63,000 bbl. daily and exports decreased 143,000 bbl. daily

As large as this percentage increase was, it was exceeded by gains ranging from 8 to more than 20 per cent in residual fuel oil, gas oil, distillate, and kerosene. This half-year record follows a similar situation in 1939 compared to 1938.

Herein lies a demand development which has become of controlling importance in the industry's operations. It has brought an unbalanced operation at many refineries. Because the demand for the heavier products — particularly those given the general classification of gas oil and distillate—has been greater than that for gasoline, the trend last winter was to maintain high operating levels despite the seasonal reduction in gasoline consumption. The result was the accumulation of record stocks of gasoline which subsequent price developments have shown to be excessive. One of the major needs of the industry is a practical solution to this development in which the demands for the heavy and intermediate products of petroleum are outstripping the enlarged outlets for the light products. There is no reason to believe that this comparative situation in regard to demand will change in the near future.

Exports

It was fortunate that the record domestic demand for the principal refinery products came at a time when exports dropped to the lowest point in several years. The decreased foreign shipments of crude oil, all grades of light and heavy fuels, kerosene and gasoline ranged from 25 to more than 40 per cent. Export lubricating-oil shipments showed increases the early part of the year, but decreased the second quarter.

The decreases were entirely due to the European war as some of the other foreign markets, particularly South America, increased the first half year. Shortly after the war started last September it became apparent that the restriction of civilian consumption in belligerent and neutral countries coupled with withdrawals from accumulated storage, would enable several European countries to reduce their purchases of petroleum in this country and some of the other oil areas of the Western Hemisphere.

Since the German aggressive warfare started in April, the position of the Allies has become increasingly critical and their early war purchases of petroleum in this country have not been maintained. Through invasion by Germany, the important oil outlets of Norway, Denmark, Netherlands, Belgium, and France have been lost to this country over the past 90 days. Italy's entry into the war shut off the export outlets of the Mediterranean. As the half year closed there were practically no exports to Europe except to the British Isles. There has also been some restriction of the export movement from California to the Far East over the past several months.

Imports

The trade agreements with Venezuela, made effective by the State Department last December, resulted in a large increase in imports the first 6 months. For the first 5 months of this year imports averaged 210,000 bbl. daily, which compares with an average of 147,000 bbl. for the same period in 1939. Nearly 70 per cent of this increase is accounted for by the enlarged imports of residual fuel oils. The remaining 30 per cent represents increased shipments of distillates and gas oils and the low-gravity crudes of Mexico and Venezuela. The regular import tax on crude oil and these heavy oils is 21 cents per barrel. Under the trade agreement this tax was reduced to 10½ cents per barrel on all shipments up to 5 per cent of the crude refined at refineries in this country. The imports in recent months have been the maximum permissible under the reduced import-tax rate.

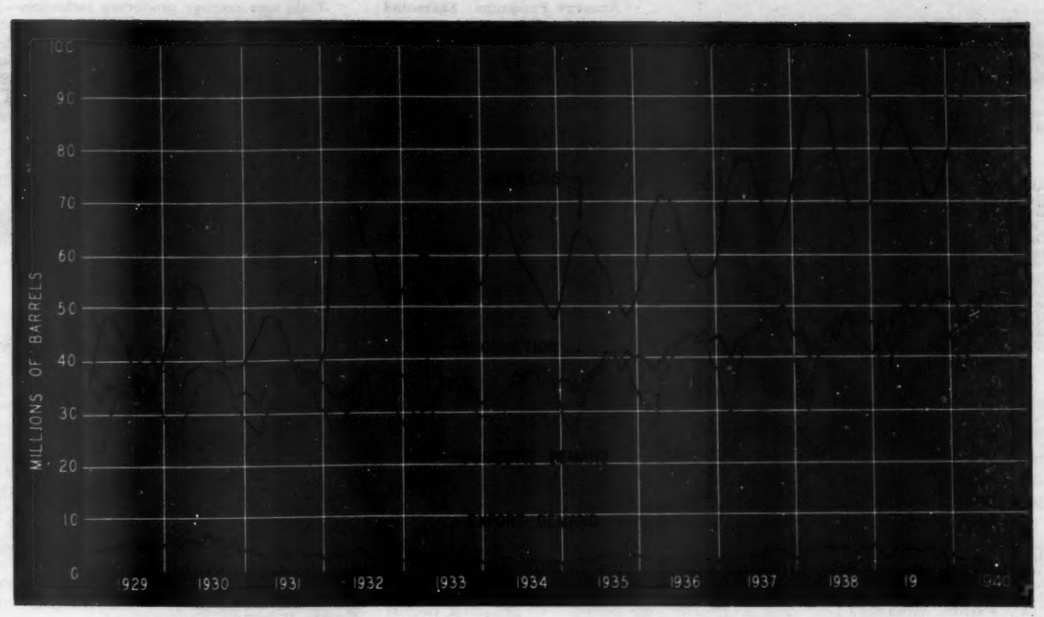
While the increased imports have been con-

demned by many in recent months as contributing to unsatisfactory markets, it has also been pointed out that the imports of the heavy oils have tended to minimize the seriousness of the domestic situation previously explained in which gasoline has been overproduced to supply the market for distillates and fuel oil. There is no evidence that the State Department intends to change the plan as it affects petroleum.

Excess Supply

A domestic crude-oil production which averaged 3,762,270 bbl. daily the first 6 months oversupplied this record total demand for petroleum in this country. National crude production was 5 to 6 per cent in excess of requirements as estimated from month to month by the Bureau of Mines.

Crude-oil stocks, which decreased substantially the last half of 1939, starting with the shutdown in late August, began to increase early this year and on July 1 were approximately 25,000,000 bbl. higher than on January 1. In addition, gasoline stocks which were too high at the start of the year continued to expand and by March exceeded all totals of previous years by several million barrels. Gasoline inventories at the close of the half year were still comparatively high. In general, inventory trends in other products, with the exception of the recent gains in lubricants, have been favorable.



Gasoline production, demand and stocks. Gasoline stocks are at refineries and do not include natural-gasoline inventories

Price Trends

Price trends over the past 6 months have been in line with this supply-demand relationship. Last fall the shutdown of most of the fields of the Southwest for 2 weeks and the start of the war resulted in a strong statistical situation which brought higher prices for most products. Earnings of representative companies greatly increased the last quarter of 1939 and first quarter of 1940. Some companies benefited substantially in earnings through the higher prices for lubricants.

Excess production of gasoline became a bearish factor in the gasoline market early in the winter. Prices declined steadily, gaining momentum in the coastal areas in the late spring when the export outlets started to decline sharply. By July all gasoline markets from the refineries to the filling stations had declined to the lowest point since the depression period of the early thirties.

Price trends in most of the other refinery products were more favorable than that of gasoline, although lubricants reacted sharply from the high levels of December and early January. The price declines have brought refinery revenue down to the point where plant losses are reported by those who have no offsetting crude-oil production or pipe-line revenues. This was the market situation of many operators at the close of the half year.

Outlook

A summary of developments is of value only as a guide to operations for the remainder of the year and succeeding years. In the past it has been possible at this time of the year to project accurately the demand for crude oil and refinery products over the balance of the year. Last year estimates of this publication covering the second half-year demands for the principal refinery products, were accurate within 1 per cent.

The uncertainty regarding the export demand over the next 5 months makes any projection of total demands particularly hazardous. The war in recent weeks, as previously explained, has largely removed Europe as a consumer of the Western Hemisphere's petroleum. So long as the war continues in its present status, little change in the export movement is to be expected.

An early peace presumably would result in a resumption of peacetime trading in petroleum between this country and belligerents, including the invaded countries, thus reopening a large market. Assuming the ability to pay for goods, it is pointed out by those closest to this situation that depleted storage and destroyed oil properties may mean an exceptionally large petroleum demand for the Western Hemisphere to extend over an indefinite period.

It is assumed by many that peace terms will also bring changes in the ownership and operation of some of the important oil-producing and refining properties of Europe and Asia. No large gains in production are in sight for the immediate future in that area, thus strengthening the position of petroleum in the New World.

While these developments may bring a quick change in the present dull export situation, the estimate of demand for the last half year, which is summarized in the accompanying table, is based on the assumption that exports will continue from 25 to 40 per cent under the same period in 1940. A return to normal exports the last quarter of the year would mean adding 15 to 20 million barrels to the demand totals. Exports normally represent about 15 per cent of the total market of producers and refiners in this country.

Domestic Market Favorable

The domestic outlook for petroleum demand, the remainder of this year, is favorable. Domestic increases are expected to more than offset the reduced exports as they did the first 6 months. The estimated percentage gains in domestic demands for the last half year on which the data in the accompanying table are based are: Gasoline, 6 per cent; kerosene, 12 per cent; gas oil and distillate, 12 per cent, and residual fuel oil, 7 per cent. A small increase in the domestic demand for lubricants is expected.

These percentage increases, with the exception of lubricants, are in all cases smaller than those of the first half year.

Gains in demands for all products the last half of 1939 over 1938 were better than average

(Continued on Page 75)

PAST AND FUTURE OF 1940 DEMAND IN THE UNITED STATES

Data in barrels	First 6 months	Second 6 months†	Year
Gasoline	288,930,000	322,700,000	611,630,000
Daily average	1,588,000	1,754,000	1,671,000
Kerosene	37,160,000	37,300,000	74,460,000
Daily average	204,000	203,000	203,000
Gas oil and distillate	94,190,000	86,110,000	180,300,000
Daily average	518,000	468,000	493,000
Residual fuel oil	176,110,000	181,900,000	358,010,000
Daily average	968,000	989,000	978,000
Lubricating oil	18,676,000	20,100,000	38,776,000
Daily average	103,000	109,000	106,000
TOTAL	615,066,000	648,110,000	1,263,176,000
Daily average	3,339,000	3,522,000	3,451,000
Total all oils*	710,700,000	755,000,000	1,465,000,000
Daily average	3,905,000	4,103,000	4,003,000
Demand for domestic crude	646,000,000	679,500,000	1,325,500,000
Daily average	3,549,000	3,693,000	3,622,000

*In addition to products listed above this figure includes crude-oil exports, road oil, asphalt, coke, still gases, miscellaneous products and gas losses from operations. †June and second 6 months estimated.

ARKANSAS

Discoveries

Field and county; producing formation—	Acreage proven	Formation thickness	Estimated reserves
Fouke, Miller; Paluxy	40	30	320,000
McKamie, Lafayette; Smackover	100	85	550,000
Nick Springs, Union; Travis Peak	80	3	160,000
Total			1,030,000
Extension			
Atlanta, Columbia; Smackover	640	25	4,436,000

ILLINOIS

Discoveries

Albion, Edwards; McClosky, Bridgeport, Waltersburg	200	14	500,000
Boos, Jasper; McClosky	80	9	200,000
Burnt Prairie, White; McClosky	60	11	150,000
Centerville, White; McClosky	40	4	80,000
Dale, Hamilton; Cypress	200	20	600,000
Inman, Gallatin; Roseclair	40	8	60,000
Iron, White; Hardinsburg, McClosky	340	19	850,000
Irvington, Washington; Benoist	40	18	100,000
Lancaster, Wabash; McClosky	200	10	500,000
Mattoon, Cales; McClosky	20	8	40,000
Maud, Wabash; McClosky	20	11	50,000
Mount Carmel, Wabash; Cypress	40	18	100,000
West Liberty, Jasper; McClosky	...	..	.....
Total			3,230,000
Extensions			
Fairman, Clinton; Bethel	140	30	350,000
Dundas, Richland; McClosky-Wheeler	400	15	1,200,000
New Harmony, White; Waltersburg, McClosky	200	18	500,000
Storms, White; Waltersburg, McClosky	100	8	250,000
Bartelso, Clinton; Devonian	120	11	300,000
Total			2,600,000

KANSAS

Discoveries

N. Bornholdt, McPherson-Rice; chat	1,400	40	5,600,000
Hall, Russell; Arbuckle	640	10	1,920,000
Snider, Stafford; Simpson	400	30	1,600,000
Ernsting, Barton; Arbuckle	320	12	1,120,000
Rahn, Cowley; Bartlesville	120	40	540,000
Knop, Barton; Arbuckle	400	11	1,400,000
Krier, Barton; Arbuckle	320	10	1,120,000
Ehler, Ellsworth; Arbuckle	640	11	2,880,000
Wondra, Barton; Lansing	200	40	800,000
Gurney, Russell; basal	320	5	1,440,000
Beaumont, Greenwood; Arbuckle	160	5	400,000
Severy, Greenwood; Topeka	160	5	400,000
Krier, Barton; Lansing	960	17	4,800,000
Kroutwurst, Barton; Arbuckle	320	8	960,000
Hoffman, Barton; Arbuckle	560	10	2,800,000
Hall, Russell; Tarkio	160	5	640,000
Bitikofer, McPherson; chat	240	31	720,000
West Lost Springs, Marion; chat	520	10	1,560,000
Haska, Ellsworth; Arbuckle	640	20	3,200,000
McLouth, Jefferson; Mississippi	160	100	480,000
Arkansas City, Cowley; Burbank	160	16	720,000
Sander, Ellis; Arbuckle	560	10	2,240,000
Total			37,340,000

NORTH LOUISIANA

Discovery

Oila, La Salle; Wilcox	760	25	3,420,000

LOUISIANA GULF COAST

Discoveries

Bayou des Glaize, Iberville; Miocene	10	9	100,000
Bayou Pigeon, Iberia; Miocene	40	25	400,000
Delta Farms, La Fourche; Miocene	40	16	480,000
Erath, Vermilion; Miocene	40	11	200,000
Lake Salvador, Plaquemines; Miocene	20	11	50,000
Neale, Beauregard; Wilcox	320	15	3,200,000
Nibletts, Jefferson Davis; Oligocene	40	20	*40,000
Ritchie, Acadia; Miocene	20	10	50,000
West Cote Blanche, St. Mary; Miocene	20	27	80,000
Total			4,600,000
Extensions and New Sands			
Barataria, Jefferson; Miocene	40	6	200,000
Bayou Blue, Iberville; Miocene	20	22	100,000
Anse La Butte, St. Martin; Miocene	40	25	300,000
La Place, St. James; Miocene	40	10	40,000
Sulphur, Calcasieu; Miocene	15	15	100,000
Bancroft, Beauregard; Cockfield	505	15	4,040,000
Grand Bay, Plaquemines; Miocene	640	10	4,800,000
Chalkley, Cameron; Miocene	40	20	80,000
Valentine, La Fourche; Miocene	25	21	250,000
Total			9,910,000

MISSISSIPPI

Discovery

Pickens, Yazoo; Wilbura (Eutaw)	80	5	1,200,000
Extension			
Tinsley, Yazoo; Woodruff, Perry, Stevens	2,600	30	23,455,000

OKLAHOMA

Discoveries

Edna, Creek; Wilcox	240	18	720,000
West Weleetka, Okfuskee; Booch	320	16	960,000
East Broyles, Payne; Oswego	240	50	580,000
North Wewoka, Seminole; Wilcox	160	24	720,000
Kendrick, Lincoln; Prue	80	36	280,000
South Langston, Logan; Wilcox	160	100	480,000
Perkins, Lincoln; Hunton	480	35	1,440,000
Cumberland, Marshall; Tulip Creek	160	100	4,800,000
East Okemah, Okfuskee; Cromwell	280	36	980,000
South Clarita, Coal; Wapanucka	80	20	120,000
West Arno, Creek; Prue	320	90	960,000
Prague, Pottawatomie; Skinner	480	30	1,440,000
West Francis, Pontotoc; Gilcrease	80	25	200,000
North Cromwell, Okfuskee; Cromwell	640	23	2,580,000
			16,240,000
Extensions			
Jackson, Seminole; Gilcrease	160	15	240,000
Okemah, Okfuskee; Wilcox	240	56	840,000
Gray, Pottawatomie; lime	320	12	640,000
Skellyville, Lincoln; Hunton	360	100	1,080,000
Fish, Seminole; Wilcox	320	10	1,600,000
West Earlsboro, Pottawatomie; Viola	320	55	1,120,000
West Earlsboro, Pottawatomie; Hunton	320	18	960,000
Wilzetta, Lincoln; Simpson	320	15	1,280,000
Total			7,760,000

WYOMING

Extension

Lance Creek, Niobrara; Sundance	80	25	1,200,000

EAST TEXAS

Field and county; producing formation—	Acreage proven	Formation thickness	Estimated reserves
Discovery			
Chapel Hill (oil), Smith County; Pettit (L. Trinity)	40	30	320,000
Extension			
Chapel Hill (distillate), Smith County; Glenrose	200	10	200,000

SOUTHWEST TEXAS

Discoveries

Boyle, Starr; Pettus	20	7	100,000
Day, Guadalupe; Chalk	10	15	25,000
East Flour Bluff, Nueces; Frio	40	10	300,000
Fagan, Refugio; Frio	100	3	50,000
Gallagher, Jim Wells; Frio, Vicksburg	40	19	300,000
Manila, Jim Hogg; Pettus	10	6	25,000
North Keeran, Victoria; Frio	20	7	65,000
North McFaddin, Victoria; Frio	20	2	10,000
North Rincon, Starr; Frio, Vicksburg	10	10	10,000
Glenn, Webb; Mirando	100	12	500,000
Orange Grove, Jim Wells; Frio, Vicksburg	600	10	4,500,000
St. Charles, Aransas	40	10	*40,000
Terrell, Victoria; Frio, Vicksburg	20	10	20,000
Thomaston, De Witt; Wilcox	40	30	*120,000
Total			6,065,000
Extensions and New Sands			
Victoria, Victoria; Catahoula	150	10	525,000
Richard King, Nueces; Frio	400	10	3,000,000
Wade City, Jim Wells; Frio	400	20	6,000,000
West Tuleta, Bee; Sparta	20	5	10,000
Telferner, Victoria; Catahoula	20	5	50,000
East Mathis, Live Oak; Frio	40	4	150,000
Robstown, Nueces; Frio	40	12	280,000
Bruni, Webb; Queen City	20	10	10,000
Total			10,025,000

*Distillate.

TEXAS GULF COAST

Discoveries

Blessing, Matagorda; Frio	40	35	*120,000
East Bernard, Wharton; Cook Mountain	40	15	*60,000
Liverpool, Brazoria; Frio	40	16	400,000
Lolita, Jackson; Frio	640	15	10,000,000
Mackay, Wharton; Heterostegina	40	13	100,000
Ogburn, Harris; Yegua	40	8	32,000
Sheridan, Colorado; Wilcox	40	8	100,000
Total			10,812,000
Extensions and New Sands			
Chocolate Bayou, Brazoria; Frio	100	3	100,000
South China, Jefferson; Frio	150	8	375,000
Esperson, Liberty; Vicksburg	40	50	800,000
Spurger, Tyler; Cockfield	10	10	480,000
Mauritz, Jackson; Frio	200	6	440,000
Green Lake, Galveston; Oligocene	40	10	300,000
Total			2,495,000

NORTH AND WEST CENTRAL TEXAS

Discoveries

Hall-Jordan, Baylor; Palo Pinto (Canyon)	100	10	600,000
Cooper-Steed, Jack; Bryson sand (Strawn)	40	20	200,000
Bonita, Montague; Bend	200	15	1,500,000
Seay, Montague; Bend	160	15	1,200,000
K.M.A. (Ord.), Wichita; Ellenburger (Ordovician)	40	20	320,000
Harris, Callahan; Tannehill (Cisco)	20	10	30,000
Hutton-Slaughter, Callahan; Cisco	80	5	120,000
Jackson, Callahan; Cisco	20	8	30,000
Gayle, Coleman; U. Strawn	20	10	40,000
Nowles, Haskell; Palo Pinto (Canyon)	160	25	640,000
Farrel, Jones; Gunsight (Cisco)	20	15	50,000
Triplett, Jones; Cook (Cisco)	40	15	160,000
South View, Taylor; Cisco	20	10	40,000
Total			4,930,000
Extensions			
Hull-Silk (4,300 ft.), Archer; Strawn	700	35	4,200,000
Mankins (deep), Archer; Caddo lime (Bend)	160	30	1,120,000
Seymour, Baylor; Canyon	300	20	2,400,000
Halsell, Clay; Strawn	160	42	1,200,000
Ross, Clay; Smithwick (Bend)	40	25	400,000
Walnut Bend (4,900 ft.), Cooke; Strawn	100	30	600,000
Rogers & Rogers (5,100 ft.), Montague; Bend	640	25	4,160,000
Consolidated, Wilbarger; Strawn	100	50	700,000
Novice, Coleman; Gordon sand (Strawn)	300	25	900,000
Roeser-Cook, Shackelford; Cook (Cisco)	120	15	480,000
Fagg, Stephens; Caddo lime (Bend)	140	15	560,000
Stribling, Stephens; Caddo lime (Bend)	440	25	2,200,000
Total			18,920,000

WEST TEXAS AND SOUTHEAST NEW MEXICO

Discoveries

Gulf-Tubb, Crane; Ellenburger (Ordovician)	40	35	400,000
Noelke, Crockett; Yates sand (Permian)	100	30	500,000
Todd (deep), Crockett; Strawn	320	70	3,840,000
Wyatt, Crockett; U. Big lime (Permian)	40	15	60,000
Walker, Pecos; Permian sand	40	10	80,000
Atlantic-University, Ward; Permian sand	40	15	60,000
Mann, Tom Green; Blaine lime (Permian)	40	15	100,000
South Apco, Pecos; Ellenburger (Ordovician)	40	35	400,000
Total			5,440,000
Extensions			
Duggan, Cochran; Blaine lime (Permian)	1,500	60	7,500,000
North Cowden, Ector; Big lime (Permian)	1,000	56	10,000,000
South Cowden, Ector; Big lime (Permian)	300	40	1,200,000
Foster, Ector; Big lime	1,300	35	9,100,000
Goldsmith, Ector; Big lime	1,200	70	13,200,000
Holt (deep), Ector; L. Big lime	400	30	3,200,000
Seminole, Gaines; Big lime	1,300	60	9,100,000
Wasson, Gaines-Yoakum; Big lime	2,000	49	16,000,000
Slaughter, Hockley; Blaine lime (Permian)	3,000	50	18,000,000
Sharon, Scurry; San Angelo lime (Permian)	200	30	600,000
Magnolia-Sealy; Permian sand	300	20	1,500,000
Total			89,400,000
Grayburg, Eddy; San Andres (Permian)	300	20	1,050,000
High-Lonesome, Eddy; Permian lime	100	20	350,000
Loco Hills, Eddy; Permian	600	14	2,400,000
Kersey-Creek, Eddy; Permian lime	200	28	800,000
Halfway, Lea; Permian lime	80	10	240,000
Maljamar, Lea; Permian sand	160	35	400,000
Penrose, Lea; Permian sand	200	25	700,000
South Eunice, Lea; White lime (Permian)	200	45	1,600,000
Skelly, Lea; Permian sand	400	27	1,600,000
Lynn, Lea; Permian sand	80	21	400,000
South Lovington, Lea; Permian lime	160	60	1,120,000
Total			10,660,000

Production Exceeds New Proven Reserves So Far This Year

By W. V. HOWARD

THE proven reserves of oil in the United States diminished by 409,045,094 bbl. during the first half of 1940 as production exceeded discoveries and extensions by that amount during the period. According to the figures presented herewith, only two states, Kansas and Mississippi, found new reserves in excess of production, while all of the other oil-producing states were unable to keep abreast of their withdrawals.

The picture is, however, by no means as dark as it would appear from this survey. In the first place, a great many fields are slowly extending their limits and each of these added locations can hardly be dignified by the name of "extension" although in the aggregate they may account for many millions of barrels. Such fields are not considered in this semiannual survey but their estimated ultimate recovery is reestimated at the end of the year in The Oil and Gas Journal's annual survey at which time they are given credit for the additional oil which they have been proved to contain during the year.

Another factor which tends to reduce the semi-annual estimates is that many companies start their drilling programs in the spring and discoveries in the first half year are often limited to a single well. During the latter part of the year other wells extend the proven acreage in these pools and so greatly increase the proven reserves. A case in point is the Cumberland pool in southern Oklahoma, which at this time has only one well. Five wells are now drilling and two additional locations are announced. Obviously, by the end of the year, this pool will be proven to a much greater extent than the 160 acres now allotted to it.

First Estimates Low

Still another cause of low estimates is the practice of limiting estimates as much as possible to proven acreage. For several months all evidence has pointed to a linking of the Slaughter and Duggan pools in West Texas, and of several pools in Ector County. These might quite justifiably be given a flat estimate of 40,000 or 50,000 proven productive acres. Drilling is progressing slowly and acreage is added as it is actually proved, even though it is practically certain that eventually much greater areas will be found productive. In precisely the same way, the Goldsmith pool in Ector County is being slowly extended outward. An estimate based on the lowest contours above the water table would probably come very close to outlining the ultimate limits of the field. However, the field is not proven until it is drilled and The Oil and Gas Journal's estimates follow the drilling instead of attempting to anticipate it.

In Kansas there are a large number of separate pools which are treated as individual 40-acre and 160-acre pools, even though they are separated from others by only one or two locations. So long as these are carried as separate pools, the intervening area cannot be considered proved, even though it can be judged proven for all practical purposes. Every day we are coming closer to the time when whole areas which now contain from 2 to 20 separate pools will be combined into single fields with consequent large increases in estimated reserves, possibly without the necessity of drilling more than a half dozen or so wells. As our knowledge of the different parts of the country increases, it may be possible to estimate from the behavior of the discovery well and the geology of the area the reserves that have been discovered as accurately as we now estimate the reserves after the area has been completely drilled up. This will, however, be a task for the next decade rather than for this one.

Crude-Oil Reserves Discovered First Half 1940—Production for Same Period—Barrels

State—	New discoveries	Extensions old fields	Total new oil discovered	Production	Gain or loss (—)
California	.....	.....	.....	111,237,829	—111,237,829
Rocky Mountain States:					
Wyoming	.....	1,200,000	1,200,000	12,158,327	—10,958,327
Other	.....	.....	.....	3,932,198	—3,932,198
Central and Southern States:					
Kansas	37,340,000	.....	37,340,000	30,439,864	6,900,136
Oklahoma	16,240,000	7,760,000	24,000,000	75,771,721	—51,771,721
Arkansas	1,030,000	4,436,000	5,466,000	12,800,941	—7,334,941
Louisiana	8,020,000	9,910,000	17,930,000	52,241,341	—34,311,341
Mississippi	1,200,000	23,455,000	24,655,000	1,335,037	23,319,963
New Mexico	.....	10,660,000	10,660,000	19,981,087	—9,321,087
Texas	27,567,000	121,040,000	148,607,000	255,501,195	—106,894,195
Eastern States:					
Illinois	3,230,000	2,600,000	5,830,000	78,576,843	—72,746,843
Other	.....	.....	.....	30,756,711	—30,756,711
Total United States	94,627,000	181,061,000	275,688,000	684,733,094	—409,045,094

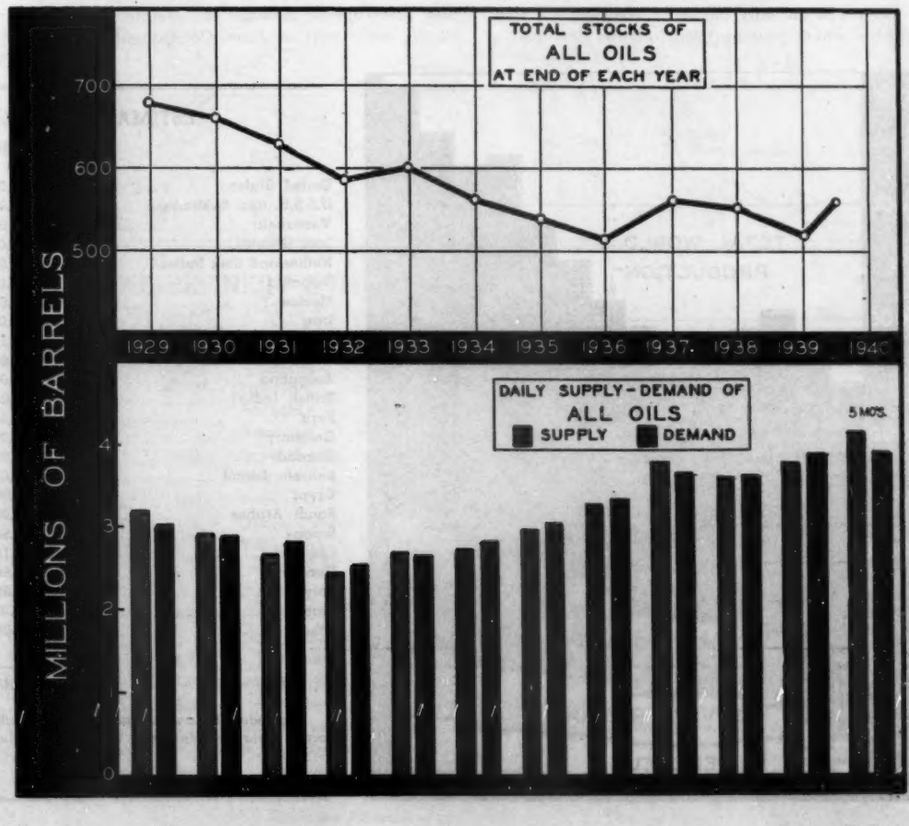


Chart showing annual changes in supply and demand and in stocks of crude

World Crude-Oil Production

6,000,000 Barrels Daily

By H. STANLEY NORMAN

INTERNATIONAL crude-oil production defied the depressing influence of half a world at war and climbed to a new peak of more than 6,000,000 bbl. daily for the first 6 months of the year. Almost all of the gains, certainly those of a substantial nature, were registered in countries still at peace. Production declines in countries at war and in those most intimately associated with the belligerents give proof, along with constricted imports, that the petroleum industry as a whole has suffered, rather than benefited, from the fighting.

Nevertheless, it cannot be considered other than a healthy long-term outlook for the industry to find consumption, as interpreted in terms of production, moving forward despite the handicaps.

Spread of the European war to cover practically all of western Europe in the last month or two doubtless prevented a more substantial increase, again speaking in terms of production. Throughout the first half there was reluctance on the part of private capital to make further extensions of positions in the European and near eastern oil-producing countries, foreseeing a spread of the combat that has since taken place.

World crude-oil production increased 7.6 per cent. The United States alone accounted for more than 6 per cent of the total gain and other producing nations in the Western Hemisphere contributed approximately 1.2 per cent. Consequently Europe, the Near East, and Far East combined had only about 0.4 per cent of the increase.

Peru was the only nation in the Western Hemisphere which produced less oil the first half of this year than in 1939. Failure to locate new fields and to uncover deeper producing horizons in proven areas prevented Peru from holding its 1939 pace. The country has been undergoing a gradual decline in production for several years.

Under the stimulation of record-breaking fuel demand during the first 2 months of the half year and the hope that export requirements would return to at least normal, United States crude-oil production gained more than 11 per cent over same 1939 period. Currently, production is down considerably from the first-half average, indicating that adjustments for the second half will narrow the margin of increase and perhaps even point the curve downward before next January.

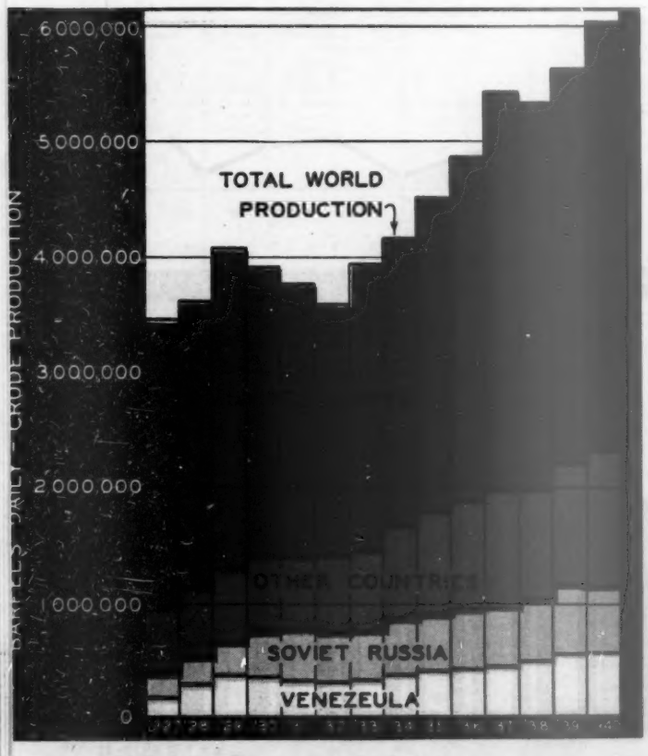
Production from countries under the direct supervision of belligerent powers is estimated on the basis of best information available under the circumstances. During early months of the war covering the final quarter of 1939, operations in the Near East and in other countries where British companies were important factors suffered severe displacement. However, the convoy system of moving tankers was functioning reasonably smooth by the start of the year and continued with only minor interruptions until Italy joined Germany and endangered all Mediterranean shipping.

British-controlled boats moved without particular interruption through the Mediterranean until the early part of June. Consequently, closure of the important shipping lane between Great Britain and the Near East oil fields in Iraq, Iran, Egypt, Bahrein, Arabia, Rumania, and the Netherland East Indies is not reflected in the first-half production estimates. Since the middle of June crude-oil deliveries through the Tripoli branch of the Iraq Pipe Line Co.'s system have ceased, automatically curtailing production from the Kirkuk field approximately 50 per cent, say to about 45,000 or 50,000 bbl. daily.

Outlets to Germany via the Danube River and to the Balkan and eastern Mediterranean countries are still open and are sufficient to absorb the normal production from Rumania. The decline of approximately 2 per cent in Rumanian production for the first half is partly due to unwillingness of British, French, and American companies to extend their investments in that country under existing uncertainties. Until the Mediterranean was closed Great Britain was the dominating purchaser of Rumanian crude for the war period. Within recent weeks a strong pro-Nazi policy has been developed in Rumania. Foreign employes in Rumanian oil fields have been drastically restricted in their functions and several have been expelled from the country. Steps have been taken by Rumanian officials to prevent emasculation of the British controlled properties, a plan that was formed early in the war to prevent supplies from falling into the hands of Germany.

Capitulation of Holland to the invading forces of Hitler early in May accented the undesirability of extending investment in the East Indies until

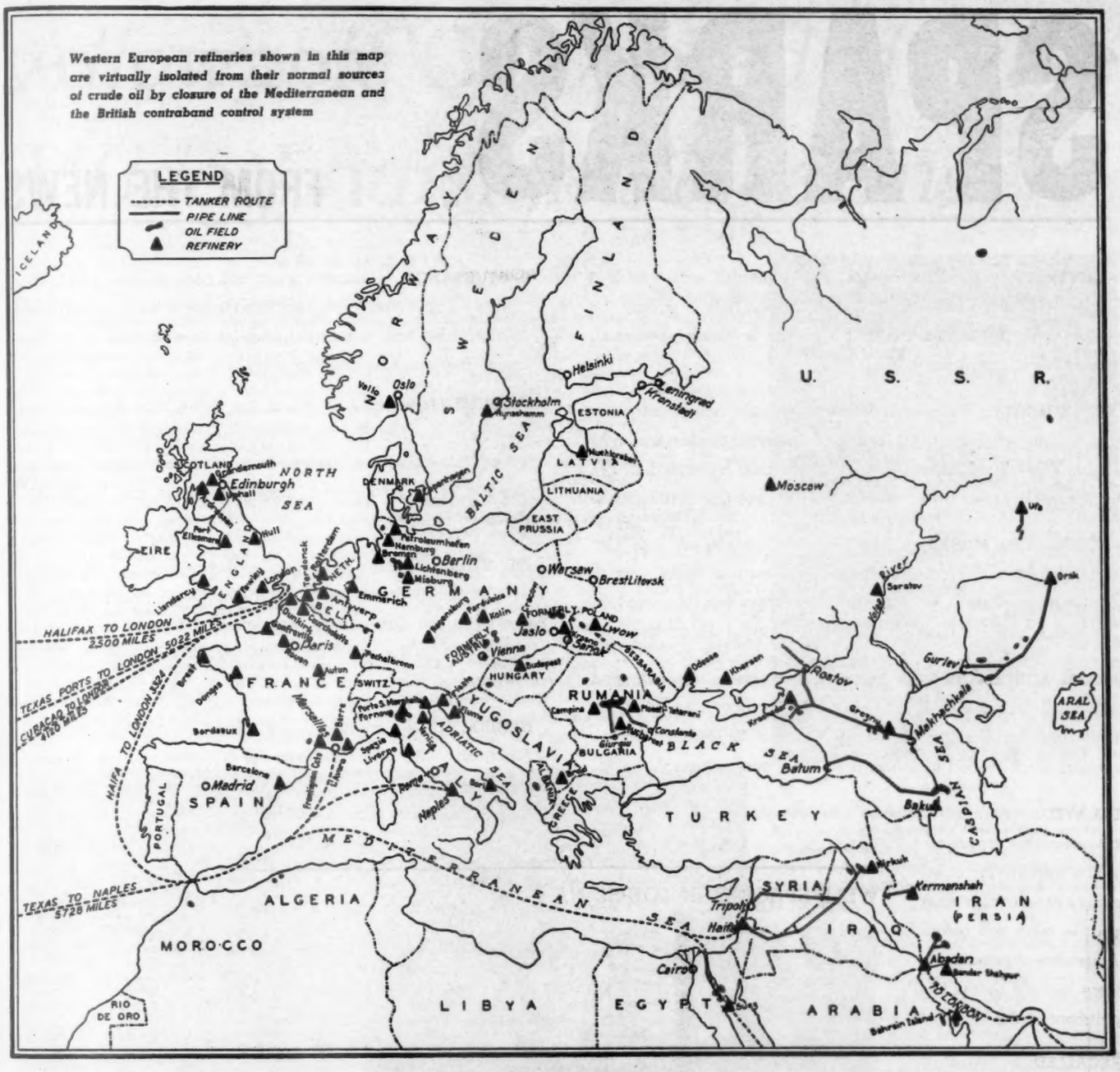
(Continued on Page 210)



ESTIMATED WORLD CRUDE-OIL PRODUCTION

	Six months 1940	Six months 1939	Change in 1939	Daily av. 1940	Daily av. 1939
United States	684,733,094	616,453,215	+68,279,879	3,762,270	3,405,818
U.S.S.R. (inc. Sakhalin)	108,500,000	106,750,000	+1,750,000	596,154	589,780
Venezuela	104,832,000	99,000,000	+5,832,000	576,000	546,961
Iran (Persia)	38,584,000	39,725,000	—1,141,000	212,000	219,476
Netherland East Indies*	33,871,000	32,100,000	+1,771,000	186,104	177,348
Rumania	22,633,000	23,100,000	—467,000	124,358	127,624
Mexico	20,195,000	18,050,000	+2,145,000	110,962	99,724
Iraq	15,470,000	15,575,000	—105,000	85,000	86,050
Colombia	10,901,500	10,586,200	+315,000	59,896	58,486
Trinidad	10,500,000	9,500,000	+1,000,000	57,691	52,486
Argentina	10,192,000	9,010,000	+1,182,000	56,000	49,779
British India†	5,132,000	4,975,000	+157,500	28,198	27,486
Peru	4,727,500	5,570,500	—843,000	25,976	30,776
Germany‡	4,641,000	4,410,000	+231,000	25,500	24,365
Canada	3,840,200	3,150,000	+690,200	21,100	17,403
Bahrein Island	3,672,000	3,802,000	—130,000	20,176	21,006
Egypt	2,660,000	2,300,000	+360,000	14,616	12,708
Saudi Arabia	2,589,000	1,180,000	+1,409,000	14,226	6,519
Japan§	1,319,500	1,225,000	+94,500	7,250	6,768
Ecuador	1,222,100	1,090,000	+132,100	6,715	6,022
Hungary	861,800	402,000	+459,800	4,734	2,221
Italy¶	757,000	525,000	+232,000	4,159	2,901
France	166,000	250,000	—84,000	912	1,381
Others	100,000	50,000	+50,000	549	276
Total	1,091,099,494	1,008,778,915	+83,320,579	6,000,546	5,573,364

*Includes Sarawak and Brunei. †Includes Burma. ‡Includes Austria, Czechoslovakia and part of Poland. §Includes Taiwan. ¶Includes Albania.



WAR-ZONE REFINERY SUMMARY

Country—	Number of refineries	Crude oil capacity (bbl. daily)	Cracking capacity (bbl. daily)	Dly. av. est. production 6 mos. 1940 (bbl.)
Bahrein Island	1	32,500	12,000	20,176
Belgium	7	12,175	2,300	.....
Denmark	1	500	.....	.....
Egypt	2	17,000	4,100	14,616
Estonia	2	1,000	.....	.....
France	19	175,550	72,900	1,381
Germany (old Reich)	31	48,450	6,070	.....
Czechoslovakia	11	12,300	1,100	.....
Austria	5	8,020	750	.....
Total Germany*	59	82,600	10,220	24,365
Great Britain	18	133,350	20,500	.....
Hungary	7	11,670	350	4,734
Iran	3	333,000	155,000	212,000
Iraq†	3	4,000	.....	85,000
Italy	10	41,300	14,800	‖ 4,159
Latvia	1	200	.....	.....
Libya	1	2,000	.....	.....
Netherlands	1	15,000	12,500	.....
Norway	1	1,300	.....	.....
Palestine	1	40,000	20,000	.....
Portugal	1	4,000	1,500	.....
Rumania‡	28	238,300	45,800	124,358
Saudi Arabia	1	3,000	.....	14,226
Spain	1	1,500	.....	.....
Sweden	1	3,500	2,700	.....
Soviet Russia§	26	646,720	178,500	596,154
Yugoslavia	3	4,800	.....	.....
Total	198	1,804,865	552,970	1,101,169

*This subtotal includes 12 refineries in the German occupied portion of Poland.

†In addition to the Iraq refineries there is a crude stabilisation plant capable of handling 80,000 bbl. daily.

‡Some reports show as many as 48 refineries in Rumania but the higher figure includes several blending, compounding and asphalt plants which are not refineries in the strictest sense.

§Includes seven refineries having daily capacity of 9,220 bbl. in the part of Poland acquired by Soviet Russia.

‖Includes Albania.

SPARKS . . . FROM THE NEWS

SLIPPING: A couple of weeks ago, Centralia was the third largest producing field in the United States. Now it is only the third largest in Illinois, and its Devonian is rapidly becoming just another producing horizon.

OPPORTUNITY: Refiners and natural-gasoline manufacturers in this country will have a 325,000,000-bbl. demand the last 6 months of this year. With this record outlet they should have no difficulty in reducing present inventories, 20,000,000 over the next 90 days.

WORDS AND MUSIC: The tune in Illinois has at long last changed. Production in the state has shown a decline for 3 consecutive weeks. It's not lack of markets that has brought about the drop, but inability to get the oil out of the ground.

MODEL AGREEMENT: The unitization and pressure-maintenance agreement promulgated by Cotton Valley operators in North Louisiana furnishes an excellent example for formulation of similar, much-needed instruments in other gas-condensate fields.

DELAYED: Japanese engineers are just now completing aviation-gasoline facilities which were in advanced stages of construction a year or more ago before American technicians were recalled by the Department of State.

RECALLED: Missouri was fast becoming the forgotten state in the Forest City basin, but a promise of Hunton production may recall it to memory.

DOOR OPEN: It now develops that the Federal Power Commission in its recent noninterference decision in the production of natural gas, left the door open for reversal, if conditions justify.

DISTURBANCE: California which has been endeavoring to mark time in its operations until it got its supplies in balance with needs, is now faced with a possible town-lot development in the Rosecrans area due to a new discovery.

ARGUMENT: Practically all of the large increases in imports this year are fuel oil and low-gravity crudes. The industry's economists are now arguing as to whether or not these increases, in view of the shortage of these heavy oils, are beneficial to domestic markets.

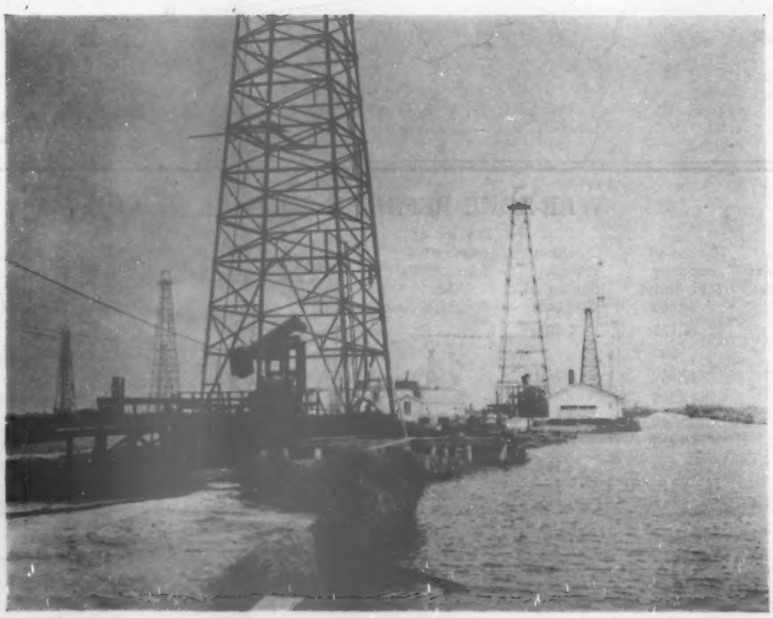
OIL STAKE: Japan's new top officials are looking with covetous eye at the oil properties of American, Dutch and English companies in the East Indies. Petroleum is rapidly increasing in importance as the big stake in the Old World's shifting balance of power.

HEGIRA: Based on last year's figures, more than 50 million Americans will, before the summer is over, pile into 15 million cars and set out to roam hither and yon over the nation's highways. These pleasure tourists will spend over $5,000,000,000, a billion of which will be spent for gasoline, oil and services.

TOO LATE: With production so far this year far exceeding new proven reserves, many operators within a few years may wish that they had left in the ground, the crude they have been forcing on saturated markets.

GROWING PAINS: The world's petroleum production has passed 6,000,000 bbl. daily, a gain of 100 per cent in 15 years and a 50 per cent growth since 1933. No other major industry parallels this record.

WELL SPACING IN LOUISIANA . . .



Wide well spacing, to be followed under terms of the new act, will result in considerable savings to operators. Pooling of separate ownerships in the same drilling tract precludes the necessity for close, offset drilling. View shows field in coastal area. (See article on opposite page)

Allowable Cut Asked at State Wide Louisiana Hearing

By GEORGE WEBER

BATON ROUGE, La., July 19.—Louisiana's first state-wide hearing, called today by new Conservation Commissioner B. A. Hardey, was concerned with nominations for August and September production. Purchasers of Louisiana crude in most cases requested allowables at the present July level or slightly increased allocation to care for new well completions. In direct contrast, one of the state's major purchasers asked for an 11.47 per cent reduction in allowables to offset current runs to storage.

In calling the informal hearing to order, Commissioner Hardey expressed belief that this first hearing, necessary to make allocation orders legal in the state, would be followed by periodic bimonthly hearings and in addition, special hearings within the 60-day periods when emergency demanded. He called for nominations by purchasers, based on market demand, and explained that the hearing was concerned only with allocation of production among fields, and not with intra field allocation.

In expressing deep concern over the amounts of crude and refined products going into storage, and the price cuts in North Central Texas, he added that the state was studying these trends and doing all possible to keep informed of the situation.

Individual purchasers' nominations of market demand by field followed. Although nominations in some cases duplicated figures given by producers, an unofficial total presented before the commissioner reached approximately 330,000 bbl. daily in contrast to the July allowable figure of 280,371 bbl.

Testimony of the Standard Oil Co. of Louisiana explained that company's case in asking for a reduction in allowable during the next 2 months. The company stated that as of January 1, 1940, it had in storage 3,867,958 bbl. of crude, and that increased storage at the rate of 7,271 bbl. daily during the first 6 months of the year resulted in a storage total on July 1 of 5,191,329 bbl. Refinery runs at Baton Rouge had declined from a January average of 102,424 bbl. daily to an expected 91,320 bbl. daily during August. At the present rate of allocation in fields where Standard purchases, it was estimated by the company that an average of 8,274 bbl. would daily be run to storage during the next allocation period. In its desire to reduce, rather than increase storage of crude, the company strongly urged a reduction of 11.47 per cent in prorated Louisiana production.

Excepting unprorated daily production of 14,595 bbl., and lube and other special crudes, amounting to 25,950 bbl. daily, the company states it purchased a total of 63,095 bbl. daily, and other purchasers took 34,486 bbl. daily from all fields in which it purchased. A reduction of 4,000 bbl. was asked on the 35,000-bbl. portion of the above figure, which Standard purchases in Louisiana.

Following testimony by Standard Oil Co., Humble Oil & Refining Co. representatives supported the request for reduction in state allowable. Humble's testimony asserted that Louisiana production was in excess of market demand in view of crude runs to storage in coastal sections. Humble accepted reduction in fields where it produced and asked similar reduction in all other prorated fields. A representative of Tide Water Associated Oil Co. expressed his company's willingness to accept its pro rata share of the suggested cut.

B. A. HARDEY

Conservation commissioner of Louisiana, who is expected to be named director of minerals, under the reorganized plans which separate the minerals division of the present Department of Conservation and set up all minerals departments under the new Department of Minerals

High-pressure gas-condensate wells like the one pictured in Cotton Valley, will be incorporated into unitized recycling and pressure-maintenance projects, under provisions of Louisiana's new conservation act

Foreign and Domestic Demands

The company cited figures on domestic and foreign demand in the United States, stating that in May, domestic demand was 9.19 per cent over that of a year ago, while foreign demand was 40.17 per cent less than in May 1939. The total demand in May of this year, considering both domestic and export figures, was stated at 0.67 per cent above that for May 1939.

Further statistics were shown of relative demands of 1939 and 1940 for the first 5 months of each year. In that period of 1940, domestic demand was stated to be 10.22 per cent over the similar period in 1939, while export demand declined 28.2 per cent, resulting in a total increase of 4.96 per cent in overall demand.

The company cited an average of 125,000 bbl. being run to crude storage daily during the first 6 months of 1940, in states east of California. Texas showed the greatest storage increase, with an average daily addition of 55,000 bbl., but at the present time, it was pointed out, the trend has reversed. Withdrawals from storage in the state were given as 70,000 bbl. daily during June and an estimated 100,000 bbl. daily for July. The state's production for July and August were cited as 139,000 and 101,000 bbl. respectively below U. S. Bureau of Mines estimates of market demand for the corresponding months.

Hines H. Baker, director of Humble Oil & Refining Co., attacked purchasers' nominations in general as an index of actual market demand, stating that storage figures and Bureau of Mines estimates should also be taken into consideration in setting state-allocation figures. In illustrating this point he cited bona fide nominations in Texas over the past 1½ years. During 1939, nominations made to the Texas Railroad Commission were reported to average 226,000 bbl. or 16.4 per cent over actual market demand, while during the last 3 months of 1939 and thus far in 1940, such nominations were 450,000 bbl. or 34 per cent in excess of Bureau of

Minee estimates and stock withdrawals. Mr. Baker concluded by citing Texas' reduction in allowable since March 1940, and stating his opinion that if similar reductions were not made in other states, the situation would result in unconnected wells and selective buying, constituting physical waste.

The obvious factor of export reductions in affecting increased storage led to inquiries by operators present at the hearing, as to whether foreign crude was being allowed to compete directly with Louisiana crude in United States and foreign markets. While the latter market, being outside jurisdiction, was considered not relevant, the commissioner stated that a survey was being made of all crude movements in and out of the state, and reports would be made, probably at the next hearing.

Commissioner Hardey continued that in view of the apparent crude runs to storage, it became a difficult problem to issue orders which would be equitable to all producers in the state. He suggested the possibility, in view of the conflicting nominations, of crude exchanges among purchasers to relieve the situation. He cited the state's desire to prevent cutting off any outlet for Louisiana crude, which would be made up from other states' production, and asked purchasers if, in event of a Louisiana reduction, they would seek to make up nominations from other states. The commission will study testimony given at the hearing, and issue an allocation order July 23.

No Price Cut Threatened

No price reductions in Louisiana crude are expected, despite large amounts in storage. Several purchasers in the state this week agreed that there was no indication of a price change. These companies included Standard Oil Co. of Louisiana, Shell Oil Co., Inc., Humble Oil & Refining Co. and Pan American Petroleum Co.

New Conservation Law, New Taxes, Enacted by Louisiana Law Makers

BATON ROUGE, July 19.—The Louisiana Legislature, which adjourned here last week, enacted a new conservation law considered by legal authority as the most advanced of its kind now in effect. Reorganization of the entire state government touched the Department of Conservation in severing from it and setting up under a Department of Minerals, administrative authority over development, conservation and regulation of all mineral resources in the state.

Less welcome, but necessitated by emergency, were added levies on the oil industry. In order to liquidate a record debt, left to the new administration, the industry must share the burden with increased severance taxes on oil and gas, a manufacturing tax on natural gasoline and added taxes on distillate, condensate, butane and diesel fuel.

Statutes governing the control of pollution were improved without detriment to the industry. Although still administered by the Department of Conservation, whose relations with the oil industry have been divorced by reorganization, the amended pollution laws will enable the state to work in close cooperation with the industry in pollution control.

Conservation Act

Comprising all the points currently recognized as necessary elements of a modern conservation statute, the Louisiana law (Act 157 of 1940) goes further in adding new provisions. Outstanding among these is the granting of authority to the state for requiring gas recycling and unitization of separate ownerships in such projects. This matter was first given consideration by state lawmakers in Mississippi earlier this year, but failed enactment.

Section 4(b) of the Louisiana law, relating to the new provision, reads: "In order to prevent waste, and to avoid the drilling of unnecessary wells, the director shall, after notice and upon hearing, determine the feasibility of and require the recycling of gas in any pool or portion of a pool productive of gas from which condensate or distillate may be separated or natural gasoline extracted and promulgate rules to unitize separate ownerships and to regulate production of the gas and reintroduction of the gas into productive formations after separation of condensate or distillate or extraction of natural gasoline, from such gas."

Louisiana has several gas-condensate fields, but few recycling projects at the present time. Pressure-maintenance plants like the one shown above, at Ville Platte, and the larger plant projected at Cotton Valley will result in greater recovery of condensate and oil production and will retain gas reserves for future use

The importance of the new measure is clear when the fact is considered that in Louisiana a number of high-pressure gas-condensate pools have been discovered. The state ranks second to Texas in the volume of such reserves, but recycling has been delayed in some cases by a failure to effect sufficient unitization of acreage to provide field-wide plans for pressure maintenance. It is estimated that the measure will result in a saving of millions of dollars in drilling costs through wider spacing, and will accrue to both producers and the state, much additional revenue through improved conservation of gas and condensate.

The act further provides under Section 7, for the establishment of drilling units embracing the maximum area which can be drained by one well in fields where development has not progressed to a stage where such wider spacing would be judged impractical or unreasonable. This section is similar to the respective provision in the existing Arkansas law, excepting that no maximum limit is set on drilling units. Pooling of separately owned tracts in such drilling units is required for the prevention of waste and drilling of unnecessary wells.

Contraband Procedures

The act vests the director of the Department of Minerals with the right to seize and sell all illegal oil, gas, or other product produced in excess of state allowable. In proceeding against such production, the director as plaintiff shall bring a civil action in rem, i.e., against the illegal product itself as defendant. The action shall be brought before the district court of the parish in which the commodity is found and sale by the state is conditional upon a court finding that the commodity involved is contraband.

Conformity of allowable production to market demand is made specific under definition of "waste," which includes . . . "the production of oil or gas from any pool in excess of transportation or marketing facilities or of reasonable market demand. . . ."

The remainder of the act, defining the powers of the Department of Minerals, authorizing its regulation of exploration, production, storage, transportation, processing, and marketing of oil and gas, providing for issuing of orders and conduct of hearings and investigations and fixing penalties, is similar to that statute now in effect in Arkansas.

Reorganization

Under the general reorganization of the state administration the authority over the oil industry is divorced from the Department of Conservation and set up under a new body. The Department of Minerals is granted . . . "all administrative functions of the state in relation to development and conservation of the mineral resources of the state and regulation of commercial production therefrom."

The newly formed department also includes the state Mineral Board and the Department of Mining and Minerals. The only state function touching on the oil industry, not under jurisdiction of the new body, is the making of surveys of surface waters with reference to stream pollution, which remains under the Department of Conservation.

The department will be headed by a director of minerals, appointed by the governor to admin-

(Continued on Page 214)

Lawrence Pipe Line Co.'s new Ohio River terminal and blending plant at Mount Vernon, Ind.

Production Decline In Illinois Braces Market

By HARRY F. SIMONS

CENTRALIA, Ill., July 23.—With a drop in production for the third successive week, it appears as though the heyday of the crude purchaser in Illinois is temporarily over. Production high point was reached during the final week of June when a daily average of slightly over 518,000 bbl. was reached and last week the total output of the state did not quite reach 479,000 bbl., a decline of 39,000 bbl. in the daily average production.

Formerly, the state's output was controlled to some extent by the available market but since the demand was forced upward to the 525,000-bbl. mark, the only controlling factor has been the ability of the fields to produce. There are some exceptions, a few fields having an outlet for a limited amount of oil and some other few fields being restricted in an effort to enhance their recovery. Generally, however, it is a case of producing all the wells will make and the weekly figures on production reflect the ability of the producers to get the oil out of the ground.

Producers in the state are beginning to enjoy a situation made to their order. Up until recently there was a flood of Illinois oil and purchasers could take advantage of the situation to hold the price down and act a little coy when approached for a pipe-line connection. Now that production is well below the demand, pipe-line companies are beginning to seek new sources of oil and recently there was an indication that the price might be increased.

Several new important outlets have been made available to Illinois during the past few months, the new outlets being partially responsible for the mounting production figure. Gulf Refining Co., long a holdout from purchasing Illinois crude, installed a spur line from its main artery to the Centralia field; the line later was looped and at one time Gulf was running 40,000 bbl. daily. Shell Oil Co. also installed a line from Centralia and Salem to the Sandoval station of the Illinois Pipe Line Co. Shell is now in position to fill practically all of its requirements at its huge Wood River, Ill., plant (75,000 bbl. daily) with Illinois crude. In addition, Sohio Corp. completed work on its 12-in. line from Salem to Lima, Ohio, late in the spring.

At the present time there are 19 pipe-line companies purchasing in the Illinois basin. Some of these act only as transporters of crude, others purchase crude for their own refineries and others act as brokers. The majority have only gathering systems and feed lines to main-line pump stations while some others have lines to railroad loading racks. Daily purchases run from 8 bbl. in the case of one company to 144,000 bbl. in the case of another company. (The figures are for the latest month available when Illinois was producing approximately 450,000 bbl. daily.)

Leading purchasers of Illinois crude and approximate amounts purchased daily are:

	Bbl.
Texas Co.	150,000
Sohio Corp.	80,000
Oklahoma Pipe Line	50,000
Magnolia	45,000
Pure	30,000
Western Pipe Line Co.	22,000
Central Pipe Line Co.	20,000
Gulf	20,000
Allied Pipe Line Co. (National Ref., Cleveland)	10,000
Illinois Pipe Line	7,000

In addition the following companies purchase varying amounts of oil: Aetna Refining Co., Louisville, Ky.; Allied Pipe Line Co., St. Elmo, Ill.; Ashland Oil & Refining Co., Ashland, Ky.; Bell-General, Mill Shoals, Ill.; Canyon Pipe Line Co., Centralia, Ill.; Centralia Refining Co.; Hal Compton, Owensboro, Ky.; Head Oil Co.; Home Oil Co.; Johnson Oil Service Co.; Kingwood Oil Co.; Louden Pipe Line Co.; Marimac Pipe Line Co.; W. C. McBride, Inc.; Potter Brothers; Rischer Oil Co.; Shell Oil Co., Inc.; Stoll Refining Co.; and Union Pipe Line Co.

Lake Shipments Reach New High

Exact effect of further reductions in crude-oil output is not yet apparent. Already the market situation has been revised to some extent by the reduced tanker rates from the Gulf Coast to East Coast refining centers, although the amount of oil shipped to the coast from Illinois was never over 30,000 bbl. and was generally in the neighborhood of 20,000 bbl. Lake shipments this year are up to an all-time high but much of this movement will be the result of storing oil at Toledo during the winter and early spring and is not entirely dependent on current production.

Purchasers between the Mississippi River and the Appalachian Mountains can resume their Mid-Continent purchases as Illinois declines or they can attempt to bolster Illinois production by encouraging wildcatting and development. Most disturbing factor is the lack of any large discoveries in recent months and for the time being it appears as if great difficulty will be experienced in finding another Salem, Centralia, Louden or Clay City field.

Effect of the impending shortage of Illinois crude oil and the entrance of more purchasers into the state is already seen in a strengthened market in that area. Last week, Sohio Corp., largest purchaser of Illinois crude, announced that effective August 1 it would pay $1.05 per barrel of crude from the Wabash Valley fields, a 5-cent increase. Sohio ran about 20,000 bbl. daily from the Centralia field during its peak several weeks ago but in 2 weeks that pool's production has declined about 25,000 bbl. The sharp decline in Centralia, plus the more gradual slump in production in the Salem field, is forcing the purchasing companies to look elsewhere for crude. Sohio purchased approximately 73,000 bbl. daily in Illinois and about 4,000 bbl. daily in Indiana in a recent month.

Approximately 11,000 bbl. of production will be affected directly by the Sohio price increase. The total output of the fields in Wabash, Edwards, White, and Hamilton counties, Illinois, and Griffin and Posey counties, Indiana, is approximately 32,000 bbl. daily.

Following is a list of the larger purchasers in those counties and the amount purchased during the latter part of June:

Company—	Purchases	
Sohio	10,802 bbl.	(Whittington 34 bbl., Griffin - Keensburg - Cowling area 5,031 bbl., New Harmony 979 bbl., Irons 799 bbl., and Heusler 620 bbl.)
Marimac	1,464 bbl.	(Mt. Carmel 34 bbl., Griffin - Keensburg - Cowling 1,270 bbl., and Lancaster 160 bbl.)
Ashland	5,199 bbl.	(Griffin-Keensburg - Cowling 3,476 bbl., Phillipstown 68 bbl. and Irons 1,655 bbl.)
Compton	3,158 bbl.	(Griffin-Keensburg - Cowling 1,099 bbl., Storms 754 bbl., Irons 671 bbl., Calvin 309 bbl., Grayville 275 bbl., and Antioch-Owensville 50 bbl.)
Bell-General	1,418 bbl.	(Mill Shoals)
Farm Bureau	2,612 bbl.	(Griffin field)
Shell	1,067 bbl.	(Dale 275 bbl. and Irons 792 bbl.)
Aetna	1,092 bbl.	(Griffin-Keensburg - Cowling)
Central	1,495 bbl.	(Lancaster)

In addition Johnson Pipe Line Co. purchases 1,700 bbl. in the Albion pool and smaller buyers each take 25 to 800 bbl. daily from various fields.

Another outlet which will soon be available to the Wabash Valley producers is the Illinois Pipe Line Co., which is installing 55 miles of 10-in. line from Bridgeport to a terminal at Centerville. Work is starting on an 8-in. line from Centerville to a terminal located in Section 29-5s-8e, about half way between McLeansboro and Carmi. Construction is also nearing completion on a line from the new Centerville terminal to Townships 4 and 5s-14w.

When the Illinois play began 3 years ago, Illinois Pipe Line Co. (Ohio Oil Co.) began purchasing the oil but abandoned this role to become a common carrier. Installation of a line through Wabash, Edwards, White, and Hamilton counties is evidently for the purpose of again entering the market.

I.C.C. May Inaugurate Trainload Rates on Mid-Continent Gasoline

WASHINGTON, D. C., July 23.—The advisability of establishing multiple-car, or trainload, rates on shipments of gasoline from Mid-Continent refining points to destinations in North Central states was discussed here last week in oral arguments before the members of the Interstate Commerce Commission. It is possible the I.C.C. may act favorably in inaugurating trainload rates for gasoline, since precedents on quantity rates have been set in recent decisions on molasses moving from New Orleans to Peoria, Ill., and on soft coal shipped from Arkansas and Oklahoma to St. Louis, Mo. As the commission usually recesses during August, a decision in the case must be handed down by the end of this month, or else no action will be taken until September.

Debate before the commissioners centered about a report made last April by Examiner C. E. Stiles in which he recommended the establishment of trainload freight rates at about one-half to three-fourths of the present carload rates. The rates would apply to shipments of 25 tank-car loads of not less than 8,000 gal. each, or about 5,000 bbl. (See The Oil and Gas Journal, May 2).

Principal representative of the complainants was J. F. Lawrence, speaking for many of the independent refineries in the Mid-Continent area which use the rails for transporting gasoline. He praised the examiner's report as "surprisingly good" for its findings of fact, but he held the recommendations were neither sound nor wise. In Mr. Lawrence's opinion, trainload rates in general might be worth a trial, but the proposed rates would have merely a negligible effect on the situation because they were too high.

After the commissioners had criticized the complainants' brief for not including the findings which they wanted the I.C.C. to reach, Mr. Lawrence declared he would be satisfied if the commission established a minimum pipe-line tender of 5,000 bbl. and a rate with a reasonable net return on the investment, or a joint through rate for pipe line and rail. Pipe lines should accept all tender on an equal basis, he asserted, whether sent by stockholders or other shippers.

Tracing the background of the case, Mr. Lawrence pointed out that due to high transportation costs the independent refining industry in the Mid-Continent field is drying up and cannot last another 2 years. Emphasizing that there is no public necessity for pipe lines, he asked why the railroads should not be rehabilitated by the one-billion-dollar annual traffic now carried by pipe lines. Railroad rates should be set at the same level as they were in 1918, he contended, before periodic percentage increases were made in them.

Asking for a "reasonable nonprejudicial rate adjustment," D. M. Orme, of the Cosden Petroleum Corp., came out in favor of the trainload-rate proposal. He stated it would be a simple matter for his company to ship 25 carloads at a time, and held that 95 per cent of the Mid-Continent refiners could use the proposed 25-car rates.

H. A. Hollopeter, representing the Indiana Independent Petroleum Marketers Association, called for the equalization of rates in the Indiana and Illinois areas. Examiner Stiles had recommended that Indiana rates be made 8 cents higher than Illinois rates, but Mr. Hollopeter insisted that 2 cents would be a more equitable difference. He favored trainload rates.

J. R. Lewallin, of the Tide Water Associated Oil Co., criticized the examiner's report on three grounds. The recommendations are not broad enough, and should include such materials as fuel oil, naphtha, and illuminating oil. The destinations are too restricted, and ought to provide for a number of other points besides the eight areas mentioned. And lastly, the rates are still too high, and should be further adjusted. Mr. Lewallin said he preferred the carload rates, but stated it would be satisfactory if trainload rates were adopted.

The opposite side of the case was presented by Morris C. Roberts, representing 80 of the 82 defendant railroad companies. He called for the rejection of the proposed report because the issue of trainload rates had not been raised in the complaint but had been introduced independently by the examiner. Secondly, he maintained the examiner had no right to recommend that the I.C.C. force the railroads to meet pipeline competition by reducing their rates because the commission had rejected its power to do so in many decisions. Furthermore, he pointed out the report had in no way found carload rates to be unlawful, and therefore the examiner could not recommend a new basis for establishing rates.

R. C. Fyfe, of the Standard Oil Co. of Indiana, criticized the report for injecting the question of trainload rates. He declared he is not in favor of such rates until their effect has been determined.

Others who briefly testified along the same lines as Messrs. Roberts and Fyfe were C. M. Spence of the Shell Oil Co., Inc., and A. M. Gee of the Illinois Pipe Line Co. T. H. Burgess, representing the Great Lakes and Phillips Pipe Line companies, declared himself satisfied with the report.

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State Capitals News

News from the state capitals, usually published on this page, will be found elsewhere this week. An account of Louisiana's first state-wide hearing on allowables will be found on Page 59.

New Conservation Chairman . . .

A. H. BELL, newly elected chairman of the Conservation Committee of California Oil Producers (formerly known as the "Central Committee of California Oil Producers") this month rounds out 25 years of continuous service in the oil industry. He first ventured into the industry in 1906 as a salesman for Union Oil Co., but then became an architect and building contractor for a time. Reentering the industry in July 1915 in the engineering department of Associated Oil Co., he has served in many capacities before assuming his present duties as general superintendent for Continental Oil Co. in California.

In 1918 he went to Oklahoma with Empire Gas & Fuel Co.; in 1922 he joined Pierce Oil Co. as chief engineer and spent 2 years in Tampico, Mexico; in 1926 he became production engineer for Marland Oil Co., which was later taken over by Continental. In his present capacity with Continental he supervised drilling of the record-setting 15,004-ft. deep test drilled in 1937. He has been continuously engaged in curtailment and has been a member of all the various California curtailment groups. Under the new committee setup Mr. Bell and L. P. St. Clair, who was elected administrator for the committee, will receive no remuneration, they each having declined the $12,000 per annum that had been paid their predecessors.

Texas' Allowable Gains Due Largely to Exemptions

AUSTIN, Tex.—Exemptions from shutdowns were instrumental in causing Texas' daily oil allowable to increase 20,142 bbl. last week to 1,266,923 bbl., the Railroad Commission reported Saturday. Addition of 60 wells to the schedules resulted in the basic allowable raising 6,540 bbl., while exemption of 30 fields from shutdowns, due to water problems or other reasons, caused an increase of 15,080 bbl. This brought the total exempted allowable to 49,008 bbl., but despite this gain the state's allowable remains well within the July and August market-demand figures set by the Bureau of Mines. The bureau has estimated a market demand of 1,339,400 bbl. during July and 1,326,400 bbl. daily during August. While the 1,266,923-bbl. figure was 72,477 bbl. below the bureau's estimate, the commission estimated that underproduction of allowables by 3 per cent will increase the underage to 110,485 bbl.

In addition to the exemption of marginal wells from shutdowns the following 30 fields are also exempted from current orders, which continue through August: Barbers Hill, Big Lake, Boling, Boggy Creek, Cayuga, Charamosca, Damon Mound, Goose Creek, Hendrick, High Island, Howard-Glasscock, Humble, Iatan-East Howard, Luling-Branyon, Lehn, Livingston, Lone Star, Mission River, New West Columbia, New Hull, New Mykawa, Old Hull, Mexia, Powell, Sandy Point, Snyder, Sulphur Bluff, Talco, Wortham, and Esperson Dome. Basic allowable of these fields, and numerous individual wells exempted because of water troubles was estimated at 216,838 bbl. Basic allowables of the various districts as of July 20 and as of July 13, were listed by the commission as follows:

District—	Allowable— July 20	Allowable— July 13
Southwest Texas	199,899	198,618
Gulf Coast	185,496	178,565
East Central	75,598	65,616
East Texas	406,180	406,180
West Central	44,954	44,594
West Texas	185,069	184,385
North Texas	103,116	102,354
Panhandle	66,611	66,469
Total	1,266,923	1,246,781

Royal Dutch-Shell Will Hold Next Meeting at Curacao

NEW YORK, July 23.—The Royal Dutch Petroleum Co. shareholders will hold their next meeting at Curacao, Netherland West Indies, July 30. Formal announcement of the meeting place and time in New York last week marked the first time in the history of the Shell group of companies that the parent organization has held any of its meetings outside The Hague. The July 30 meeting will be the first held by the company since the Nazi invasion of Holland. It will signify virtual completion of hastily worked-out plans for transfer of headquarters from The Hague to the Dutch island in the Caribbean where the company's largest single refinery in the world is located.

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Hindsight

The week's mail included—

A noncomplimentary comment questioning the competence of major-company managements by an investor who thinks he sees skids being placed under earnings again despite a record demand for petroleum products.

A complaint from a North Texas stripper-well operator who wants to know how he can produce crude oil at the new 75-cents per barrel posting when he was losing money at the former dollar price.

Inquiries regarding the outlook for the balance of the year.

As to causes, effects and a base for projecting the future we suggest a careful reading of the revealing data contained in this Semiannual issue, extending from the results of wildcat exploration to the average price received for gasoline at service stations.

Some are blaming increased imports and decreased exports for the present statistical position of the industry which in many respects is where it was a year ago when a general market crisis developed.

An increase of 70,000 bbl. daily in imports accompanied by a decline of 150,000 bbl. daily in shipments to foreign customers did mean a substantial loss in business to domestic producers. However, the total demands exceeded any previous period, so the changes were not the controlling factor in operations.

Furthermore, the industry had plenty of warning regarding these and other developments affecting demand. The little attention that was paid to these warnings is shown by the records.

From January through June, national crude-oil production exceeded the monthly recommended output of the Bureau of Mines from 2 to more than 10 per cent.

Producers brought to the surface about 40 million barrels of crude that should have been left in the ground. Some 25 million barrels of this total went back into the crude-oil storage tanks, emptied last August.

Some of it was made into unneeded gasoline so that inventories of that product have been excessive by several million barrels during the entire period.

A steady decline in motor-fuel quotations has been the result, with current wholesale and retail prices the lowest in several years.

Plant revenues have declined so that refinery operators who have no offsetting crude production and pipe-line revenues are in the red. These operators are insisting that the crude-price schedules be reduced.

All this is hindsight which nevertheless should be an effective guide to the foresight which is needed if further pitfalls are to be avoided.

The domestic consumption of the principal refinery products over the coming period which ends December 31 will establish new records. These gains will more than offset export losses should shipments to buyers outside this country continue at present low levels.

With 315-million-barrel motor-fuel outlets in prospect for the last 184 days of the year, refiners, through the proper balancing of their operations, can reduce present stocks 20 or more million barrels and at the same time get ready for their largest fuel-consuming season.

As to market recovery, the recent reductions in crude production and runs to stills at refineries, while several months late, constitute effective action in the right direction. If they are continued several months, this year's operating mistakes will be corrected.

The alternative will be a drastic remedy at a time when the industry and conservation officials of the oil states should be demonstrating their ability to maintain sound health without the aid of palliatives or cure-alls.

Resistance to Price Cutting Allays Threat of Spreading

Directors of the Independent Petroleum Association of America are in an all-day meeting at Oklahoma City today (July 25) discussing measures necessary to correct conditions which precipitated localized crude price cuts last week.

Governor Phillips of Oklahoma declined to call an immediate meeting of the Interstate Compact Commission.

The Texas Railroad Commission has called a statewide proration hearing in Austin August 1.

Oklahoma producers and purchasers meet in Oklahoma City July 26 to canvass conditions within the state on call of W. J. Armstrong, chief conservation officer.

Governor Ratner of Kansas has expressed confidence that crude price cuts will not extend to that state since allowable production has been held within Bureau of Mines recommended quotas for an extended period.

Lower crude prices apply to approximately 35,000 bbl. daily in North Texas, southern Oklahoma, the Mexia field in East Texas and La Rosa pool in Refugio County, Texas.

BASIC health of the crude-oil price structure in the Southwest remains critical, though efforts of the industry have succeeded so far in isolating the reductions of last week to North Texas, southern Oklahoma and one field in the Refugio, Tex., district. Future conditions of the ailing market will depend largely on action coming from a series of meetings earlier this week, now in progress and scheduled over the next few days. The vigor and speed with which state officials, organized groups and individual producers attacked the threat of a general price decline doubtless stayed immediate action by other large purchasers of crude oil. Reductions averaging 25 cents per barrel have been confined to approximately 35,000 bbl. of daily production in the local areas.

Spirited resistance of the producers to lower crude prices has been supported in the past few days with an increase in shipments from inland refineries, but gasoline supplies are still too abundant to permit an upward tank-car price reaction.

The possibility of a general production shutdown appears to be fading. Governor Phillips of Oklahoma, chairman of the Interstate Oil Compact Commission, declined Monday to call the meeting requested by the Texas Railroad Commission. The suggestion of a shutdown coming from Texas after Panhandle Refining Co., Sinclair Prairie Oil Marketing Co. and other smaller purchasers cut crude prices in North Texas to a flat posting of 75 cents per barrel received conflicting reaction. The Stripper Well Owners Association opposes a shutdown and takes the stand that production curtailment will be sufficient to correct the ills. The Panhandle Producers and Royalty Owners Association went on record at Amarillo favoring a shutdown for 15 to 30 days.

Failing in efforts to inspire a meeting of the Interstate Compact Commission, the Texas Railroad Commission has called a state-wide hearing at Austin on August 1. Harry F. Sinclair, chairman of Consolidated Oil Corp., has been especially invited to attend the Austin meeting and avail himself of the opportunity to explain conditions influencing the subsidiary purchasing company to reduce crude prices.

Retaliatory action of the Railroad Commission included a reduction of the allowable production in the Walnut Bend pool of Cooke County, Texas, where Sinclair Prairie is the only purchaser and another operating subsidiary is the largest producer. Allowable of the field was lowered to 2,240 bbl. daily, which with 7 producing holidays in the next 2 months will bring the average down to less than 2,000 bbl. daily. Previously the allowable was 60 bbl. per well, or 3,840 bbl. daily for the field.

Following the board meeting of the Independent Petroleum Association of America in Oklahoma City, July 25, producers and purchasers in Oklahoma were to meet the following day for a canvass of the situation within the state.

The I.P.A.A. directors gave open-forum consideration to excessive imports, excessive crude runs to refineries, excessive production, excessive yield of gasoline and losses of export markets. There was no definite premeeting solution prepared for consideration. The association, however, has been a severe critic of the Venezuela trade agreement which paved the way for increased petroleum imports from South America. Imports for the first 5 months this year, including ships' bunkers, have averaged 199,000 bbl. daily, an increase of 52 per cent, while exports declined to 368,000 bbl. daily in the same period, a loss of 28 per cent.

Only a few organizations have given expressions on a production shutdown which was used last August to bolster a falling crude market, the underlying causes of which were similar in most respects to those now existing. A consensus of the industry, however, probably favors a modification of a complete shutdown.

Improvement in the offshore movement of products from Gulf Coast refineries brightened the outlook in that section to some extent. Indications on the Gulf are that export movement of motor fuel, particularly aviation gasoline, may exceed expectations for August. Reports were circulated that Great Britain will start moving gasoline from the Gulf when the foggy season offers more protection to shipping in the dangerous waters of Europe.

Scant attention was given the crude-price reduction in Kansas. Gov. Payne Ratner was confident that the North Texas cuts would not be applied to Kansas.

"There's no reason whatsoever why they should," the governor said. "Kansas has played ball with the oil companies and producers. We have followed the Bureau of Mines estimates strictly in making our monthly allowables and have held our production within the proration quotas. Price cuts would have no justification in our state. If any are made, we will deal promptly and vigorously with them."

The Kansas executive's views were supported later by J. G. Dyer, Ponca City, vice president of Continental Oil Co., who notified Governor Ratner that he saw no reason for crude price cuts to extend into Kansas or Oklahoma.

H. F. Sinclair Explains Action in Reducing Prices

The views of H. F. Sinclair on questions growing out of recent crude-oil-price reductions were reviewed in a telegram to the North Texas Oil and Gas Association. Replying to a wire from D. H. Bolin, president of the association, who commented on the seriousness of the problems involved and asked for suggestions as to remedies, Mr. Sinclair said: "I agree with you as to the seriousness of the situation with which you and all of us are faced and I also am ready to take serious measures to remedy it. As to the price reduction recently posted in your area, we met competition by following postings previously made by others. The fundamental causes for this situation go far beyond North Texas and beyond any power of correction that you or we can apply locally. I am sure, however, that we shall never correct the situation until the facts are publicly disclosed and frankly faced. Shutdowns of production are not the remedy. Retaliatory and illegal reduction of allowables in isolated cases can have no beneficial effect on our problems.

"As to the crude price standing alone as one factor in the situation, in my opinion a dollar is not enough for a barrel of crude oil. The price should be higher, but by no kind of artificial restriction or regulation can manufacturers continue indefinitely to pay more for raw material than they receive from products made therefrom.

"The newspapers state that early meetings of the Interstate Compact Commission and the Railroad Commission are being sought for the purpose of taking measures to meet the existing situation. I am heartily in favor of this step and shall seek to be heard in such meetings. But when held there should be a searching disclosure of the real causes of our troubles, facts, not theories. This discussion should deal with the effects of production in unprorated areas and with foreign imports. The industry is being subjected to false and misleading propaganda concerning the importation of foreign oil. The discussion should not be concerned merely with how much or for how long prorated states shall cut back. There might also be some helpful discussion of the influences that prevent the average refiner from getting prices for his product that would enable him to pay a reasonable price for crude. Such a discussion would be helpful to all of us in devising remedies for which we are seeking just as earnestly as you are."

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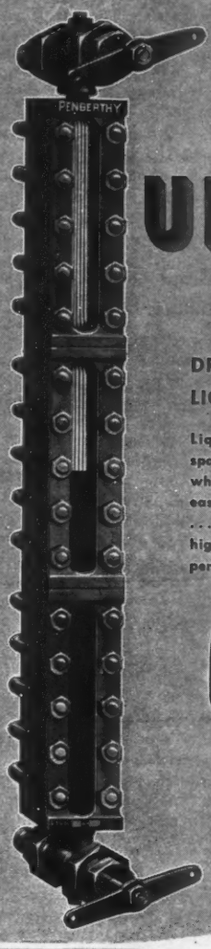

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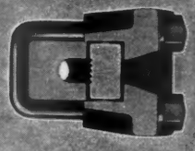

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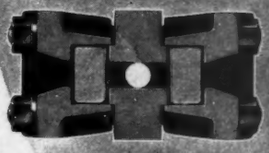

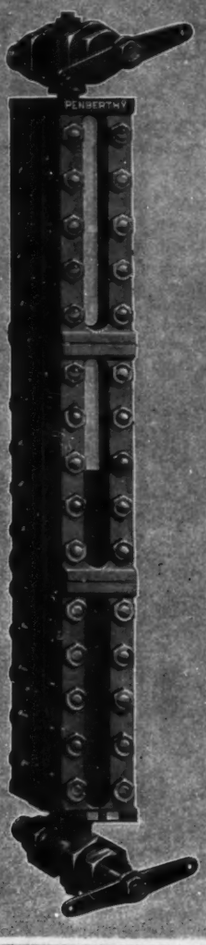

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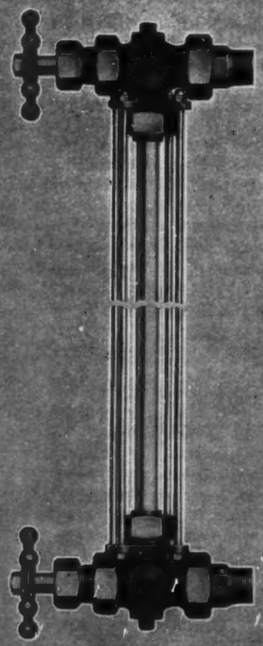

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Japan's Saber Rattling New Threat in Oil Picture

By J. P. O'DONNELL

NEW YORK, July 23.—A new development of possibly far-reaching importance cast its shadow over the increasingly complex international oil picture last week This was the return to power in Japan of Premier-designate Prince Fumimaro Konoye who replaced his country's former comparatively temperate ministers with a strongly proexpansionist cabinet. Premier Konoye's selection of ministers was designed to gain support for his policy of a new East Asia that would embrace not only Japan's present foe, China, but also the Netherland East Indies, French Indo-China, Burma and Siam.

Japanese Army circles have declared that their country's future field of action lies in the South Sea area and the new cabinet is under military dictatorship. It was formed not only to meet Japan's immediate national and international problems but also to be in a position to further the expansionist policies envisioning the new East Asia, centering on the territorial possessions of European nations. These include the oil fields of Sumatra, Borneo, Java and Ceram, the proven fields of the Netherland East Indies which last year produced an average of 180,000 bbl. of crude oil per day. In addition it includes the fields of Burma and Assam in continental Asia which had a production of 26,000 bbl. a day in 1939.

Development of the petroleum resources of this area by European and American capital was not limited to exploitation of the fields themselves but also included the erection of a dozen refineries from Assam to Borneo. These refineries (led by the 40,000-bbl. plant of Nederlandsche Koloniale Petroleum Maatschappij, controlled by the Standard-Vacuum Oil Co., and the 35,000-bbl. refinery of Bataafsche Petroleum Maatschappij, controlled by Royal Dutch-Shell, at Balikpapan, Borneo, and Palembang, Sumatra) have a combined daily capacity of close to 200,000 bbl. per day.

Determined to Gain Oil Resources

Japan's open declaration that her future field of action lies in the South Seas area leaves little question of doubt that it is her intention to fortify herself in her most glaring weakness, lack of petroleum resources. She has been dependent on the United States and Mexico principally for petroleum supplies. The possibility, however remote, of an American embargo makes her present dependence of the United States dangerously uncertain. Mexico's lack of West Coast shipping facilities is another unfavorable factor. That this particular factor may be corrected advanced beyond the realm of a faint possibility when it was reported last week that Japan was again considering the construction of a pipe line from Mexico's fields to the West Coast. A recurrent rumor, it was given greater credence now than before when it was reported that Japanese representatives were inquiring as to the price and availability of pipe.

During the temporary lull in European war activities last week, it was reported from Berlin that United States property in France suffered relatively small damage from the invasion and retreat. However, it was said that American oil companies, ordered by the retreating French to destroy their supplies, suffered greater damage than British and French companies. Notices, posted by officials of the American embassy, and certifying to the ownership of the property, were generally respected, it was said.

Also officially reported from Germany was the fact that of bond issues totaling 155,000,000 marks issued in June, 125,000,000 marks were credited to the financing of new synthetic-gasoline plants. According to Frankfurter Zeitung, one of these issues was a 40,000,000-mark loan to the Hydrierwerks Poelitz near Stettin in which Deutsh Amerikanische Petroleum A. G., German subsidiary of the Standard Oil Co. of New Jersey, is interested with I. G. Farbenindustrie.

Early in the week it was reported that Rumania requisitioned all of the country's 9,000 tank cars, including 1,000 either owned or leased by U. S. oil companies. Two days later it was announced that 3,000 of these tank cars were filled and ready to depart for Germany to supply the Nazi war machine for its scheduled assault on the British Isles.

Some evidence that the possibilities of sabotage in the Rumanian fields were not entirely removed by the control of that country obtained by Germany when she pledged maintenance of its territorial claims for the time being is seen in the report of another oil-well fire. Two were reported early last week following a series that had started some time ago.

The prediction that the war would spread to the Near East and endanger oil holdings in that area was borne out by the report of an Italian air raid on the city of Haifa in Palestine and site of the new Consolidated Refineries, Ltd., 40,000-bbl. refinery. Unconfirmed reports were that damage was slight. However, among the casualties reported was one American, J. E. Flannigan, reportedly connected with Consolidated Refineries, Ltd. His injuries were reported to be slight.

Additional evidence that Japan was seeking more oil was contained in the report that she was willing to pay $13.50 per ton for a clean tanker from California. The last paid rate on dirty tonnage from the West Coast to Japan was $10.50 per ton.

Additional evidence that there is little likelihood of Great Britain suffering from an oil famine is contained in a summary of her tanker-tonnage position now in comparison to her position before the war made by Petroleum Times. According to this summary, Great Britain now has approximately 5,800,000 tons available in contrast to 3,250,000 tons before the war. The increase was accounted for by her acquisition of 2,000,000 tons of Norwegian, 500,000 tons of Dutch and 100,000 tons of Danish and Belgian tankers. At the same time the publication says that while 11 of the 15 major French refineries are in territory occupied by Germany the absence of crude petroleum in appreciable quantity makes their value negligible.

Since war conditions have made it impossible for Italy to make good on her promise to give Mexico three tankers in exchange for oil already received, it is reported that the Mexican Government is preparing to take over the Italian tanker Genoano, one of eight vessels interned at Tampico. Mexico had already paid for the tankers, principally in the form of crude and refined oil, which were being built in Italy for Petroleos Mexicanos at the outbreak of the war in the Mediterranean.

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Will Grant Leaves of Absence For Military Duty

Employes of the Carter Oil Co., Oklahoma Pipe Line Co., and the Texas Corp. and subsidiaries have been told they might have leaves of absence for 3 months in order to attend training camps of Army or Navy organizations.

The Texas Corp. and subsidiary companies have announced that leaves of absence with pay for periods up to 3 months will be granted employes who attend training camps of the National Guard, organized reserves, naval militia, naval reserves or marine corps reserve. They will receive full pay less military pay and added allowance for quarters and rations.

The boards of directors of the Carter Oil and Oklahoma Pipe Line companies have adopted the policy that any employe who has completed a year or more of continuous employment will be granted a leave of absence up to 90 days. During this training period he will be paid by the companies the difference between his total base pay from the state and federal governments, less the normal assessments uniformly charged to all of like rank in the same unit, and his salary in effect when he was called for service. Employes of these two companies will not lose their vacation privileges because of military training and any paid leave of absence for military or naval service under this policy will be granted in addition to regular vacations.

Revise Licenses

OIL CITY, Pa., July 23.—Revision of the license regulations of the Pennsylvania Grade Crude Oil Association which was authorized by its board of directors last month is incorporated in a new edition being distributed to the refiner members and associate jobber members this week end.

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Standard Promotes Three Officials

THREE officials, with oil service records ranging from 16 to 37 years, have been promoted by the Standard Oil Co. of New Jersey (Del.) following the naming of C. F. Smith, former general manager of manufacturing operations and a vice president, to the presidency of the company.

J. R. CARRINGER *GEORGE H. METTAM* *H. G. BURKS, JR.*

J. R. Carringer, assistant general manager of the Delaware company's refineries since 1936, is now general manager of manufacturing operations. Mr. Carringer's oil career started in 1903 when he entered the employ of the tank-repair shop of Standard Oil Co. of Indiana at Whiting, Ind. In 1908 he went to the Wood River, Ill., plant as assistant superintendent and chief of the experimental department. In November 1918 Mr. Carringer joined the Standard Oil of New Jersey as assistant general manager at Bayway. In 1921 he became general superintendent; in 1926, refinery manager; and in 1933, assistant general manager of the New Jersey refineries.

George H. Mettam, new assistant general manager, started with Standard of New Jersey 30 years ago but left the company a few years later only to return again in 1913. In 1918 he had risen to assistant mechanical superintendent at the Bayonne refinery and in 1929 was appointed to the manufacturing department as staff engineer and chairman of the mechanical superintendents' committee. In the same year he became assistant manager at Bayonne, then manager in 1931, moved to Bayway as local manager in 1933, rose to manager of process operations for the three Jersey refineries in 1934 and, in 1936, manager of the New Jersey works.

H. G. Burks, Jr., now assistant to the president, started his career with Standard of New Jersey in 1924 following graduation from Massachusetts Institute of Technology. His progress to the top of the technical-service division was rapid and in 1935 he was named manager and also technical adviser to the vice president in charge of manufacturing.

F.P.C. Hedges in Opinion as to Natural Gas Act Scope

By HENRY D. RALPH

WASHINGTON, D. C., July 22.—All production and gathering of natural gas is not exempt from the Natural Gas Act, but for the present this business is not subject to the jurisdiction of the Federal Power Commission in most cases, it is revealed by the text of the commission's opinion in the Columbian Fuel Corp. case.

On June 29 the F.P.C. decided it has no jurisdiction in this case, thereby upholding the contentions of the Mid-Continent Oil and Gas Association and the Independent Petroleum Association of America. The decision became known at the time but publication of the opinion was delayed to permit Commissioner John W. Scott to write a dissenting opinion.

Under the majority opinion the Natural Gas Act does not apply to persons or corporations engaged solely in producing and gathering natural gas or in taking natural gas in connection with the production of petroleum even though this gas is sold for transportation in interstate commerce, provided such persons or corporations are not otherwise subject to the act. The commission added, however, that if it should develop that this type of business has an appreciable effect on interstate gas rates it will then consider the question of whether it has power to fix rates in such cases or whether the law should be amended to give it that power.

The Columbian Fuel Corp., located at Prestonburg, Ky., produces and gathers natural gas from its own properties in several counties in Kentucky and sells the gas at its pipe-line terminals within the state, after which the gas moves in interstate commerce. Last October the company changed its selling price and the commission ordered an investigation, in the course of which the company moved to dismiss the proceeding on the ground that it is not subject to the commission's jurisdiction even though its sales may be considered in interstate commerce because there is an uninterrupted flow of the gas from its wells to destinations in other states. Intervening associations supported this motion on the ground that any other interpretation would make producers of small quantities of natural gas "interstate gas companies" subject to regulation by the commission.

Four members of the commission adopted this view and ordered the proceedings dismissed for want of jurisdiction. The reasoning was based chiefly on the language and history of the Natural Gas Act and debate on it in Congress. The act defines a natural-gas company as a person engaged in the transportation of natural gas in interstate commerce, or the sale in interstate commerce of such gas for resale, but it also states that the act shall not apply "to the production or gathering of natural gas." In commenting on this, the majority of the Power Commission stated:

"Clearly, if the language above quoted is interpreted as excluding from commission jurisdiction, and hence from federal regulation, all companies whose sales of natural gas are made at the well mouth or at the end of gathering lines, there will be important initial sales of natural gas in interstate commerce which will remain outside the field of regulation altogether. Such unregulated sales would, then, represent important elements in the costs which must be taken into account in the regulation of all subsequent sales subject to federal or state jurisdiction.

"Consideration should also be given to the fact that, if the jurisdiction of the commission under the Natural Gas Act is assumed to extend to all companies whose natural-gas business is concerned exclusively with production or gathering, the commission's regulatory authority would not be limited to their charges for sales of natural gas in interstate commerce but would extend to other aspects of the function of producing and gathering. Thus, under Section 7, the commission could order such a company to extend or improve its transportation (gathering) facilities. The company, further, could not abandon its facilities without commission approval, nor could it extend its facilities for transportation of natural gas to or sell natural gas in a market already served by a natural-gas company without obtaining a certificate of convenience and necessity from the commission.

A Matter of Interpretation

"Further investigation of the act shows that the language can by no means be interpreted as excluding all production and gathering.

"Section 9, for instance, authorizing the commission to determine rates of depreciation and amortization of the several classes of property of each natural-gas company, includes property used and useful in production as well as property used and useful in the transportation or sale of natural gas.

"Similarly, Section 10 enables the commission to require reports including, among other things, 'cost of facilities, cost of maintenance and operation of facilities for the production, transportation, or sale of natural gas,' etc. And Section 14 enables the commission to determine the adequacy or inadequacy of the gas reserves held or controlled by any natural-gas company, or by anyone in its behalf.

"From this review of the language of the act, without reference to interpretive statements, it appears clear that Congress did not intend to exclude or exempt all production and gathering from the regulatory authority of the commission."

In conclusion the majority stated:

"The companies to be subjected to regulation were conceived of as 'pipe-line' companies, and it was assumed that production and gathering would enter the field of regulation only to the extent that the 'pipe-line' companies, either directly or through affiliates, controlled the production or gathering of the gas so transported.

"In making a choice between the broader and the narrower interpretation of its jurisdiction ununder the Natural Gas Act, insofar as the present respondent is concerned, the commission is influenced by the above consideration. This consideration is reinforced by the fact that a determination in favor of the broader conception of its jurisdiction would lead the commission into attempts to deal with the complicated interrelationship between the natural-gas industry and the oil industry. To make regulation of producers and gatherers effective under these circumstances would require statutory authority of much wider scope and machinery exceeding that at the disposal of the commission with its present limited appropriation.

"A further consideration is relevant to a reasonable decision in the matter. If, as intimated by Representative Lea, the justification for regulation lies in the monopolistic character of the wholesale rates charged for natural gas, the necessity for regulating the price at the well mouth or at the end of gathering lines exists only to the extent that such prices are fixed on a monopolistic basis or by interests with sufficient control in a given field to weaken the forces of competition. The record in the present case does not show such control.

"We conclude, therefore, that it was not the intention of Congress to subject to regulation under the Natural Gas Act all persons whose only sales of natural gas in interstate commerce, as in this case, are made as an incident to and immediately upon completion of such person's production and gathering of said natural gas and who are not otherwise subject to the jurisdiction of this commission.

"Further experience with the administration of the Natural Gas Act may reveal that the initial sales of large quantities of natural gas which eventually flows in interstate commerce are by producing or gathering companies which, through affiliation, field agreement, or dominant position in a field, are able to maintain an unreasonable price despite the appearance of competition. Under such circumstances the commission will decide whether it can assume jurisdiction over arbitrary field prices under the present act or should report the facts to Congress with recommendations for such broadening of the act and provision of additional machinery as may appear necessary to close this gap in effective regulation of the natural-gas industry."

In his dissenting opinion Commissioner Scott pointed to the distinction recently drawn between production and commerce by the Supreme Court and declared that while the physical activity of extracting oil or gas from the ground is not subject to federal control, the minute the gas is sold to be shipped into interstate commerce the seller becomes engaged in interstate commerce and is subject to regulation by the Power Commission. He interpreted the exemption given to persons engaged in production or gathering to cover only activities having no relationship to interstate commerce such as production and gathering of gas for the manufacture of carbon black or other use by the producer or for local distribution or sale in intrastate commerce.

Mexico Again Seeking Pipe Line to Pacific Coast

By H. STANLEY NORMAN

THE long-nurtured desire of Mexico for a reliable petroleum-transportation system terminating on the Pacific Coast, through which an active bid could be made for the Japanese business, has been revived. There is danger that the latest scheme may suffer an abortive death if denials of participation by the American contracting firm upon which the project seems to depend are accepted at face value.

Furthermore, the Department of State is known to frown upon any plan that would make Japan less dependent for her petroleum supplies. Participation in any plan that would put Mexican petroleum on the western coast of that country accessible to Japan would meet with disfavor in Washington, it is believed.

From Mexico City come reports that negotiations between the government and the Raymond Concrete Pile Co. of New York were well advanced for construction of 150 miles of pipe line along the railroad right-of-way between Puerto Mexico and Salina Cruz. The railroad itself is of little use and the bed is unsuited to movement of heavy freight but the grade would simplify the task of building a pipe line across the narrow neck of the Isthmus of Tehuantepec.

Deny Negotiations

Paul D. Case, of New York, treasurer of Raymond Concrete Pile, denied his company had even negotiated with the Mexican Government on construction of the line, much less reached a stage where only details remained to be settled as reported from Mexico City. The denial also covered refutation of reports that the Department of State had entered a protest against the participation of the American company in the project since this would have been impossible in the absence of negotiations.

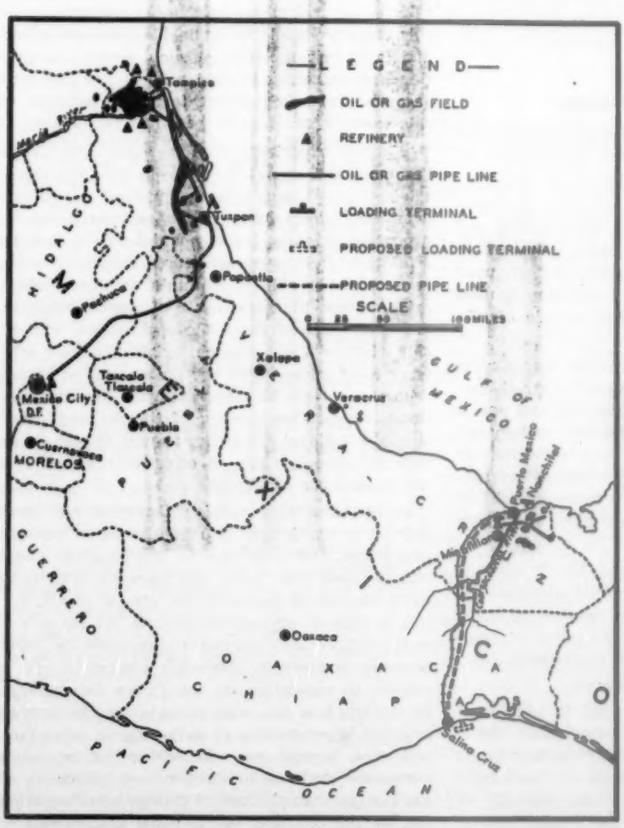
Significance of the announcement of plans for the pipe line to the Pacific Coast of Mexico may spread into more remote channels than appear on the surface. For instance, a congressional subcommittee at Washington is now giving consideration to an amendment to the National Stolen Property Act of 1934.

Castillo Najera, Mexican ambassador to the United States, has protested the enactment of the amendment, backed up by a personal statement from President Cardenas. The amendment, introduced by Senator Sheppard of Texas, has passed the Senate and is now in the hands of a subcommittee of the House judiciary committee. The original act provides severe penalties for those who "shall transport or cause to be transported in interstate or foreign commerce any goods, wares, merchandise, securities or money of a value of $5,000 or more theretofore stolen or taken feloniously by fraud with intent to steal or purloin, knowing the same to have been so stolen or taken."

Reports from Washington are that the pending measure is designed to stem the importation of Mexican oil which rose from a daily average of 5,148 bbl. the first 5 months of 1939 to 29,516 bbl. in the same period this year. In the settlement accepted by Consolidated Oil Corp. for subsidiary properties expropriated by Mexico there was an undisclosed volume of Mexican crude oil involved which has been moving to this country.

The Mexican Government is having its own troubles with its expropriated petroleum, particularly since Italy entered the European war. Prior to Italy's declaration of war approximately 15,000 bbl. daily of Mexican oil moved to that country.

Now, President Cardenas is reported determined to place his economy program into immediate operation. The plan calls for saving about 16,000,000 pesos ($3,280,000) in operation of the petroleum industry for remainder of the year. About 2,600 workers are scheduled to be dropped from the pay roll and wages of all employes are to be reduced about 30 per cent. Other provisions for economy call for discontinuance of housing allowances and elimination of overtime. Workers' syndicates have entered vigorous protests against the Cardenas program.



Proposed Pacific terminal for Mexican oil

Administration's Attitude

Revival of the Isthmus pipeline plan at this time may have the effect of tempering opposition to the economy program. At the same time, the threat of making Mexican oil available to Japan may serve to invoke administration interference in the House consideration of the pending bill which would hamper movement into markets of the United States.

Japan is willing to purchase large quantities of Mexican oil if it can be loaded on the Pacific Coast of that country. Loading at Salina Cruz would eliminate the Panama Canal toll charges and materially reduce the time required by tankers to make the trip to the eastern coast oil ports of Mexico, now the only points of export. The port of Salina Cruz would require dredging before it could accommodate ocean-going tankers.

Coastwise Tanker Charter Rates Lose Additional Ground

NEW YORK, July 23.—Coastwise tanker charter rates have lost additional ground in the past few days. A vessel was fixed last week for movement of a cargo of gasoline from the Gulf Coast to Montreal, Can., at the rate of 45 cents per barrel, a sharp reduction from previously asked prices.

Two fixtures for gasoline and kerosene were made from the Gulf to North Atlantic ports at 21 cents. The last previous fixture was at 41 cents for gasoline and 44 cents for kerosene.

DEATHS

CLARENCE E. MOSHER, 66, well-known Titusville, Pa., oil man and for many years head of the Cupler Torpedo Co., died July 17 at the Titusville hospital following an illness of several weeks. His death followed a month after that of his wife. Four children survive.

RICHARD W. NORTON, 55, San Antonio oil man, died July 17 in a hotel room in Chicago, where he had been attending the Democratic National Convention as a delegate-at-large from Texas. Mr. Norton is credited with the discovery of the Rodessa oil field in Louisiana, and with having sold about one-fourth of his holdings in that field to the Magnolia Petroleum Co. for about $15,000,000 in 1936. A native of Texas, Mr. Norton had resided in San Antonio since 1934.

B. M. PHILLIPS, a former resident of Shreveport, La., and for a number of years connected with the Arkansas Gas Co., died in Pittsburgh, Pa., on July 15. His wife and a daughter survive.

EDWARD J. VAUGHN, 70, retired general counsel of Barnsdall Oil Co. of California, died in Los Angeles July 16.

FRED THOMPSON, 56, oil operator of Oklahoma City, Okla., died shortly after being stricken with a heart attack Wednesday night, July 17, while vacationing in San Antonio, Tex.

JOSEPH EDWARD CONSIDINE, 68, traffic manager for American Petroleum Co., died Thursday, July 18, in a Houston, Tex., hospital.

HOWARD C. MEYER, 53, general manager of refined oil sales for Gulf Oil Corp., died July 20 in Pittsburgh.

JAMES P. MAHER, 47, assistant general manager of the Chapman Valve Manufacturing Co., died at Indian Orchard, Mass., July 17. Maher formerly was branch manager of the Chapman company in Tulsa from 1919 to 1927, and until he became assistant general manager in 1937 was in charge of the Philadelphia, Pa., branch.

C. EUGENE POTTER, 66, oil producer in the Bradford field and second vice president of the Producers Bank & Trust Co., of Bradford, died at his home in Bradford, Pa., July 18. Born at Scio, N. Y., he engaged in the oil business in Duke Center. He has resided in Bradford for 22 years.

WILLIAM E. PALMER, 52, vice president of the Southwest Supply Co., died July 22 in a Tulsa hospital following a 4-day illness. A native of Indiana, he spent 29 years with supply companies in the Mid-Continent, 27 of which were with National Supply Co. In 1937 he resigned as division tubular manager for National to join the Southwest company.

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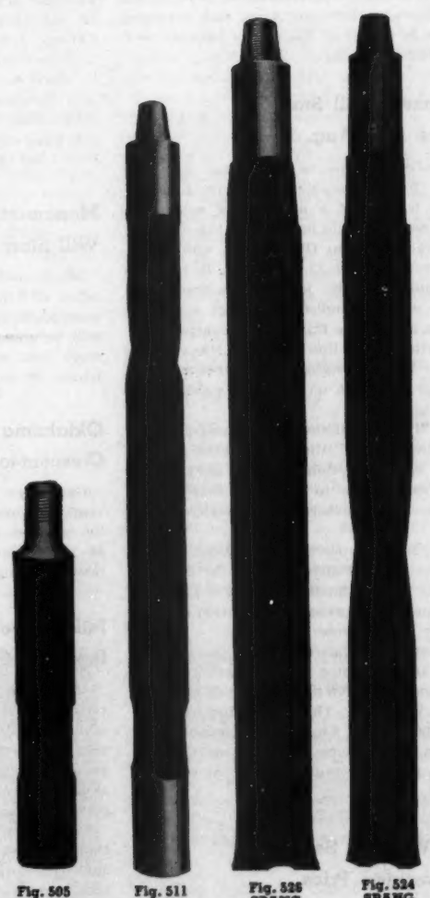

Fig. 505 SPANG Prosser Rope Socket | Fig. 511 SPANG Weldless Jar | Fig. 526 SPANG Regular Bit | Fig. 524 SPANG Twisted Bit

SPANG & COMPANY

BUTLER, PA.

Pipe-Line Activity

O. C. Whitaker Prepares to Build Socony-Vacuum Line

O. C. Whitaker Co. is moving equipment for construction of the refined-products line of Socony-Vacuum Oil Co., Inc., between the company's refinery at Buffalo and Syracuse, N. Y., work on which will start August 1. The project involves the construction of a total of 171 miles which will consist of 6-in., 18-lb. pipe except for 14 miles of 4-in. The 4-in. is to be laid in a double line in a 7-mile ditch.

In laying the line there will be more than 300 road crossings. A barge canal will be crossed twice and the Genessee River will be crossed twice. Construction will be carried on in the city limits of Buffalo and Syracuse. There will be six terminals on the line. Gates are to be set every 3 or 4 miles. The line will be coated throughout but will be wrapped only for the 8 miles in which the line traverses three swamps.

O. C. Whitaker Co. is establishing an office at Canadaigua and a warehouse will be established at Avon. The work will be completed within 60 days. The job is to be done by two spreads using the stovepipe method. There will be two ditchers with each spread. J. C. Britton is superintendent; Earl Hackleman is in charge of the spread working between Avon and Syracuse. Blackie Lewis is in charge of the spread between Buffalo and Rochester.

Williams Brothers Will Start Manufacturers Line Aug. 1

Williams Brothers Corp. is preparing for construction on a project of Manufacturers Light & Heat Co. which is part of a program of expansion. Work will start on a 117-mile natural-gas line between a point on the state line near Olean, N. Y., and Brookville, Pa. Pipe sizes are 8, 10, 12, and 16 in. H. L. Davis is the superintendent of the job for the contractor. The two spreads will be handled by George Allen and Thelma Davis. In addition to this line the contract calls for the construction of a line between Monaco and Elwood City, Pa. Work starts on the right-of-way this week; pipe is due to arrive on July 29; welding will start August 1.

The Public Utility Commission of Pennsylvania approved the applications of three companies in the Columbia Gas & Electric system to build a $1,684,769 pipe line from West Virginia to New York State, carrying 2,500,000,000 cu. ft. of natural gas annually to consumers.

Petitions of the Manufacturers Light & Heat Co. and Manufacturers Gas Co. of Pittsburgh and the Pennsylvania Fuel Supply Co. of Emlenton to build 117 additional miles of pipe line to present distribution systems were approved by a 4-to-1 vote.

Williams Brothers Corp. has completed the work of reconditioning 4 and 6-in. pipe and is starting on the 8-in. pipe on approximately 100 miles of line of Northern Pipe Line Co. in Wyoming. This contractor has completed laying 16,000 ft. of 8-in. for Minneapolis Gas Light Co. This week Williams Brothers start laying 12,000 ft. of 24-in. for this company inside the city limits of Minneapolis.

Contracts for Welding Several Pipe Lines Awarded Price

H. C. Price Co. of Bartlesville, Okla., has been awarded the contracts for electric welding on the following pipe lines:

For United Gas Pipe Line Co., Mississippi River crossing near St. Rose, La.; general contractor, Ford, Bacon & Davis Construction Corp.

For Gulf Oil Co., 12 miles of 6-in. and 8-in. near Centralia, Ill.; general contractor, Jones & Brooks, Inc., of Nevada.

For Shell Oil Co., Inc., 6 miles of 6-in. near Sandoval, Ill.; general contractor, I. C. Little.

For Illinois Pipe Line Co., 57 miles of 8-in. and 10-in. from Centerville, Ill., to Bridgeport, Ill.; general contractor, Sheehan Pipe Line Construction Co.

For Montana-Dakota Utilities Co., 120 miles of 8-in. and 20 miles of 3-in. from Glendive, Mont., to Glascow, Mont.; general contractor, W. A. Bechtel Co.

For Tuscarora Pipe Line Co., 10 miles of 8-in. near Harrisburg, Pa.; general contractor, Dempsey-Wilson Construction Co.

For Panhandle Eastern Pipe Line Co., 55 miles of 24-in. consisting of three loops in Illinois; general contractor, I. C. Little.

For Atlantic Refining Co., 8 miles of 16-in. near Philadelphia, Pa.; general contractor, Dempsey-Wilson Construction Co.

All of the above lines are to be electric welded.

Shell Ships Refined Products By Pipe Line to Chicago

A pipe line, formerly in crude-oil service, has been converted to the transportation of refined products between the Shell refinery at Wood River, Ill., and a lake terminal at Chicago. This is an 8-in. line with a capacity of 27,000 bbl. It is operated by the gasoline pipe-line department of Shell Oil Co., Inc. There are six stations on the line. The company's refinery at Chicago has been closed.

Tanker shipments of refined products are being made by Shell to Great Lakes ports from Chicago and Toledo terminals. At present, shipments to Toledo are made from the Lima terminal of the Shell products pipe line by means of a line leased from Buckeye Pipe Line Co.

Montana-Dakota Construction Will Start on August 1

Montana-Dakota Utilities Co.'s line, consisting of 120 miles of 8-in. and 20 miles of 3-in., which has been contracted by W. A. Bechtel Co. and H. C. Price Co., will be under way soon. Pipe is due to arrive July 26; work will start on August 1. Completion is planned within 90 working days.

Oklahoma Natural Will Lay Crescent-to-Edmond Line

Oklahoma Natural Gas Co. has sent out specifications to contractors and asked for bids which are to be received July 24 for the construction of 20 miles of 10-in. between Crescent and the company's main line near Edmond, Okla.

Milwaukee Studies Gas Pipe-Line Situation

MILWAUKEE, Wis.—Mayor Carl F. Zeidler has recommended that the city council study the question of bringing a natural-gas pipe line to Milwaukee. Two companies—the Western Natural Gas Co. and the Independent Natural Gas Co., Phillips Petroleum Co. subsidiary—have filed application with the federal and state commissions to bring natural gas to the city.

Union labor, meanwhile, has filed a protest declaring that such a pipe-line extension to Milwaukee would cause the loss of many jobs among companies manufacturing gas in the state.

Warren Starts 40 Miles Of Line Near Salem, Ill.

Work starts this week on the laying of 40 miles of pipe line in the Salem field for the Warren Petroleum Co. Size of the lines will vary from 22 to 4 in. This is the gathering system of the natural-gasoline plant being erected by Warren in the Salem pool. Holland Construction Co. has the contract for laying pipe.

The new plant will handle from 20,000,000 to 25,000,000 cu. ft. daily and will manufacture natural gasoline, butane, isobutane, and propane. F. E. Thompson, superintendent for Warren Petroleum Co., and George Sutter, construction engineer for Frick-Reid Supply Corp., will have charge of erection of the plant. It is scheduled for completion about October 1.

Truman-Smith Starts Work on Panhandle Eastern Loops

Truman-Smith Construction Co. started work this week on the contract to loop more than 50 miles of the Panhandle Eastern Pipe Line Co.'s system. Work begins at Bloom, Kans., 25 miles southeast of Dodge City. Dean Vinson is in charge of the spread.

●

Recent Crude-Price Cuts Major Topic at Pennsylvania Meet

FRANKLIN, Pa.—Recent reductions in the price of Pennsylvania Grade crude was a topic of discussion at the annual meeting of the Central District Pennsylvania Oil Producers Association here last week, addressed by Russell B. Brown and C. E. Buchner, officials of the Independent Petroleum Association of America. Some sort of price control will be necessary unless the situation improves, several producers claimed, while others objected to any type of regulation.

David B. McCalmont, of Franklin, who conducted the meeting, said he felt the latest price cut had not been justified, because runs to stills and production were not greatly out of line in the past few weeks. He voiced optimism for the future, declaring he had heard dire predictions for the future of the industry 20 years ago but that the worst had never happened.

Mr. Brown discussed legislation affecting the oil industry, pointing to the high rate of imports of oil from Venezuela. The association passed a resolution protesting against the importation of crude oil from Venezuela.

J. E. Moorehead, executive secretary of the Pennsylvania Grade Crude Oil Association, asserted that all branches of the Pennsylvania Grade industry are losing money at a record-breaking rate. He listed the causes as the loss of export markets due to the war in Europe and stated that an expansion in the domestic market was the only solution, or development of special uses for lubricants or other crude products.

Directors elected to fill vacancies on the board caused by deaths in the past year were Elmer Roeder, Franklin, and H. B. Suhr and William A. Morck, Oil City.

Natural Gas

Southern Natural Expands Pipe-Line Facilities

Southern Natural Gas Co. has a reconnaissance party in the field to look over the ground where the company is considering laying a 20-mile loop on the 12-in. branch line serving Tuscaloosa, Selma, Montgomery, and Tuskegee, Ala., as well as Columbus and Fort Benning, Ga. The company is now installing additional compressor units at a number of stations. Work is being done by the company's own organization under the supervision of the Birmingham office.

The compressor units have a total of 12,400 hp. It is said that this order includes the largest amount of compressor equipment of the angle type which has been purchased at one time. Installations have been made as follows at the company's compressor stations:

Perryville, La., four 800-hp. V-angle type units; Onward, Miss., three 800-hp. V-angle type units; Louisville, Miss., three 800-hp. V-angle type units; Tarrant, Ala., one 1,000-hp. twin-tandem double-acting gas-engine-driven compressor unit; De Armanville, Ala., two 1,000-hp. twin-tandem double-acting gas-engine-driven compressor unit; Selma, Ala., one 800-hp. V-angle type unit; Ben-Hill, near Atlanta, Ga., one 600-hp. V-angle type unit.

Natural Gasoline

Plans for Eddy County Plant Being Studied

HOBBS, N. M.—Plans for the construction of a repressuring plant in the Artesia area of Eddy County, New Mexico, are being considered by a group of independent operators. Committeemen are Fred Brainard, Martin Yates, Jr., Bert Aston, and Emery Carper, all independent operators of Artesia. This group is now studying methods of financing the proposed $100,000 project.

Davis Planning Recycling Plant at Rincon Field

HOUSTON, Tex.—Construction of a gas-recycling plant in the Rincon field of Starr County, Southwest Texas, may be started in the near future if present plans are carried out. W. R. Davis & Co., of Houston and New York, has announced plans for the construction of a $750,000 plant which is to be in operation by January 1, 1941. The field originally produced gas distillate, but of the 38 producers now in the field several are crude-oil producers. The Davis company is now completing a large recycling plant near Alice which is expected to be on full operation early in August.

United Completes Test Runs on New Natural-Gasoline Plant

United Gas Pipe Line Co. last week completed test runs on a new 60,000,000-cu. ft. natural-gasoline plant at Koran, 25 miles southeast of Shreveport, La. The plant processes gas from Bisteneau and Sligo, and the dry gas is charged to the company's new trunk pipe line to Jackson, Miss.

C.N.G.A. Honors New President At Annual Directors' Meeting

Honoring its general manager, L. V. Cassaday, on the occasion of his installation as president of the California Natural Gasoline Association for the year 1940-41, the Lomita Gasoline Co. tendered a dinner to that association's board of directors and committee chairmen, Tuesday, July 9, at the Pacific Coast Club, Long Beach, Calif. The annual directors' meeting followed.

With 30 men in attendance, the meeting was called to order by P. S. Magruder of the General Petroleum Corp., retiring president, who received a unanimous expression of appreciation from those present for his administration of the association's affairs. Mr. Magruder then presented the gavel to President Cassaday who conducted the meeting.

J. B. Taylor, Signal Oil & Gas Co., announced the program for the association's August meeting to be held at the Pacific Coast Club, Long Beach, Calif., Wednesday, August 7, which will consist of three events. Members of the association will be taken on a tour of the newly completed Long Beach and Los Angeles harbors at 4 o'clock in the afternoon through courtesy of the Long Beach Harbor Commission. This will be followed by the regular monthly association dinner at 6 p.m. in the Pacific Coast Club dining rooms. Following dinner a program will be presented during which Dr. K. Korpi of the Union Oil Co. of California will present a paper titled, "Natural Gasoline and Its Relation to Aviation Gasoline," while the final event will be motion pictures in color made by the Vultee Aircraft Co. of actual test flights of military aircraft.

Refinery News

Standard of Louisiana Will Build Plant in Baton Rouge

The Standard Oil Co. of Louisiana has purchased 75 acres adjacent to the Baton Rouge, La., refinery for the erection of a Buna rubber plant and a plant for the manufacture of ethyl chloride for ethyl fluid.

It is understood that work on the Buna rubber plant will be started in a few days and it is expected to be in production by the latter part of the year. Initial production is scheduled to average 5 tons per day but it will be possible to expand it within a short time if the demand develops.

The ethylene plant will process gases obtained in the cracking of high-octane gasoline.

Will Spend $400,000 in Expanding Michigan Refining Facilities

Expenditure of $400,000 on expansion of refining facilities is planned by officials under a proposal for merging Imperial Refining Co. of Grand Rapids with Mid-West Refineries, Inc., of Alma. Stockholders in the two Michigan independent refining companies will be asked to approve the merger at a special meeting July 26.

B. J. Skinner, president of Mid-West and a major stockholder in Imperial, said in Mount Pleasant last week that his company has authorized addition of 2,000 bbl. daily to the Alma plant's cracking capacity and that a similar addition will be made at Imperial's Grandville plant.

Imperial now has two topping plants at Dewey with 2,000 bbl. daily capacity and at Grandville with 4,000 bbl. daily capacity. The Mid-West refinery at Alma has capacity of 3,200 bbl. daily crude and 1,200 bbl. daily cracking.

Quaker State Repairing Fire-Damaged Refinery

SMETHPORT, Pa.—Repairs are under way at the Farmers Valley refinery of the Quaker State Oil Refining Corp., following the fire July 16 which caused a loss of about $15,000, destroying four 500-bbl. tanks of semirefined oil and naphtha and damaging several others. The loss is covered by insurance. The recently installed new plant was not damaged. The fire was confined to the tankage area.

Two California Refineries Start New Construction

CHICAGO.—Pathfinder Petroleum Co. of Los Angeles, Calif., has signed a license agreement with Universal Oil Products Co. and will immediately install a catalytic polymerization unit to produce polymer gasoline from the cracked gases produced in its refinery at Los Alamitos. The poly unit will have a rated capacity of 345,000 cu. ft. of gas per day. H. A. Meek is president of Pathfinder, and Bert Devere is vice president and general manager.

Socal Oil & Refining Co. of Los Angeles will at once revamp the cracking unit in its refinery at Huntington Beach, Calif., to operate the Dubbs process, following the signing of a license agreement with the Universal Oil Products. At present the refinery is running about 3,000 bbl. a day of Huntington Beach crude. When revamped the plant will be a two-coil selective cracking unit with a capacity of 1,150 bbl. per day of 16.6° A.P.I. gravity topped crude. C. A. Johnson is president and general manager of Socal, and J. H. Grimes is vice president and refinery superintendent.

Kendall Building Laboratory to Test Motor Oil

BRADFORD, Pa.—Construction of a mechanical laboratory for engine testing of motor oil is under way at the property of the Kendall Refining Co. The two-story brick structure, 30 by 60 ft., will be completed about October 1. Officials said they plan to produce conditions encountered in road operation of an automobile engine. Equipment to be installed includes: Eight internal-combustion engines, including multi-cylinder engines, a bank of single-cylinder apparatus and dynamometer.

Mississippi Plant Will Start Operations in Near Future

VICKSBURG, Miss.—Construction of the E. C. Johnson Co. refinery here is nearing completion and the plant will start operating in the near future. The plant, of about 2,000-bbl. capacity, will process crude from the Tinsley field northeast of Yazoo City, first shipments of which were received last week. E. E. Peveto is general superintendent of the plant.

McBride Refining Co. Formed By Two-Company Merger

SAN ANTONIO, Tex.—The McBride Refining Co., Inc., was formed at Edcouch, Tex., last week following the merging of properties of the Refugio Refining Co. and the McBride Oil Co. Lynn McBride, founder of the McBride company, will head the new company, while Garland Clymore, of San Antonio, head of the Refugio company, was named vice president. The Refugio company has been operating in the La Blanca field, processing distillates into motor fuels. The merger will result in production of additional types of motor fuels, including leaded products.

Left to right along left outside of table: R. C. Wheeler, General Petroleum Corp.; O. C. Field, O. C. Field Gasoline Corp.; R. D. Gibbs, Union Oil Co. of California; J. C. Burks, O. C. Field Gasoline Corp.; C. D. Gard, Union Oil Co. of California; F. A. E. Lowell, Del Rey Oil & Gas Co., and John Rogers, Cooper-Bessemer Co. Left to right along left inside of table: C. S. Beard, C. C. M. O. Co.; W. A. Kirk, California Southern Oil Co.; H. A. Leedy, Crane Co.; E. M. Paulsen, Bankline-Norwalk Co., and W. H. Kraft, Honolulu Oil Corp., Ltd. Left to right along right inside of table: G. C. McLaren, Standard Oil Co. of California; M. W. Kibre, General Petroleum Corp.; J. B. Taylor, Signal Oil & Gas Co.; M. L. Arnold, Richfield Oil Corp.; F. E. Davis, Shell Oil Co., Inc., and R. W. Heath, Signal Oil & Gas Co. Left to right along right outside of table: J. S. Fluor, Jr., Fluor Corp.; H. R. Linhoff, Richfield Oil Corp.; R. S. Tulin, Shell Oil Co., Inc.; F. J. Colton, Tide Water Associated Oil Co.; Harry Fiske, Ingersoll-Rand Co.; T. L. Taggart, Standard Oil Co. of California, and L. C. Rowson, Texas Co. Left to right, standing rear of table: G. L. Tyler, secretary-treasurer; P. S. Magruder, director and retiring president, General Petroleum Corp.; L. V. Cassaday, president, Lomita Gasoline Co.; W. C. Dayhuff, vice president, Standard Oil Co. of California, and J. H. Kunkel, chairman, publicity committee, public relations counsel.

International

Venezuela . .

Congress Gets Progress Report From the Minister of Fomento

A 500-PAGE review of the past year's administration of Dr. Manuel R. Egana, Minister of Fomento in Venezuela, has been presented to the congress of that country.

The review deals extensively with the petroleum industry, Venezuela's most important producer of national income. The volume is liberally illustrated with graphs and contains more than 100 tables dealing with various functions of Dr. Egana's department. Crude-oil production for 1939, converted from metric tons at the average rate of 6.703 U. S. barrels per ton, totaled 204,667,431 bbl.

An interesting feature of 1939 production, some details of which had not been previously available, is that the peak output by months was reached in October. The high point in 1939 production was 2,897,824 metric tons, about 19,424,114 bbl., when September inquiries following outbreak of the European war indicated record demand for South American oil was at hand. Production was cut back sharply in November when European orders failed to support inquiries and output for that month declined to 2,476,894 tons, or about 16,602,620 bbl. The curve was extended downward in December when production totaled 2,383,153 tons, about 15,974,276 bbl. The daily average production of 515,300 bbl. in December moved forward again during the first half of 1940 to an estimated rate of 576,000 bbl.

The Ministry of Fomento review also shows exports of petroleum by companies, volume, and value. Expenditures by the oil companies operating in that country for exploration, exploitation, payrolls, housing, royalties, and other improvements are given.

Japan . .

Study Manchurian Oil Development

THE blowing in of an oil well at Fuhsin, Jehol Province, Manchukuo, some time ago has given rise to the problem of developing the field on a large scale.

The Manchukuo Government, already faced with a shortage of mining equipment, engineers and skilled workers, is hardly in a position to undertake additional commitments. The Japanese Government has been approached, but with the same difficulties obtaining in Japan, no personnel or equipment can be spared for the Manchurian project.

Since oil development is a Manchurian state monopoly (since 1935), foreign interests, even if willing to invest in Manchukuo oil fields, would be barred from active management.

To make a start, anyhow, the Manchuria Oil Co. has placed orders for six rotaries, two cable rigs, and several diamond core units. With this equipment the company expects to complete 150 tests by 1943.

According to an account appearing in the Chugai Shogyo Shimbun, the oil field is located in Chinchow Province, extending 60 miles from east to west, with Fuhsin as center. Oil sand has been contacted at several places from 300 ft. down and gas was struck at 3,000 ft.

The Fischer-Tropsch coal liquefaction plant of the Mitsui Mining Co., which has been under construction at Omuda, Kyushu, since 1937, has been partially completed and test operations are under way.

It appears that the test runs have not been fully satisfactory, for an announcement by the company states that the coal of the Miike Colliery (which is the nearest source) has been found unsuitable, and that the plant will be removed to another site.

Another Fischer plant is going up in Manchuria, and several coal-tar hydrogenation plants are under construction in Japan and Manchuria.

Considering the acute shortage of coal in Japan, all these plants, involving an investment of several hundred million yen, are white elephants. Japan has lately been compelled to import coal from Colombia, Canada, and British India. One ton of synthetic oil requires an input of 4 to 6 tons of coal.

One of the two Japanese plants to produce isooctanes by polymerization of cracking gases was recently completed by the Mitsubishi Oil Co. at Kawasaki, near Tokyo. The contract was executed by the Universal Oil Products Co. in cooperation with Tide Water Associated Oil Co., which has a 50 per cent interest in Mitsubishi Oil. Construction started before the "moral embargo" on exports of equipment and blueprints to Japan went into effect.

Another polymerization plant is being built by the Japan Oil Co.

The army, which last August sponsored organization of a 50-million-yen East Asia Fuel Industry Co. (Toa Nenryo Kogyo K. K.) to have high-test aviation gasoline produced by one of the more recent American catalytic-cracking processes, is planning to have its own secret process industrialized if blueprints and equipment cannot be obtained from the United States.

Canada . .

Bureau Reports on Production and Sales

PRODUCTION of crude oil and natural gasoline in Canada totaled 570,131 bbl. during March, the Dominion Bureau of Statistics reports. This compared with 655,586 bbl. in February and 385,273 bbl. in March, 1939.

During the first quarter of 1940 the value of Canada's exports of crude petroleum and its products aggregated $19,768. In February oil exports were valued at $82,414.

Imports of crude oil rose from 50,263,908 imperial gal. in February to 55,253,091 gal. in March. Last year crude-oil imports in March were 65,766,622 imperial gal.

Retail gasoline sales in the dominion totaled 41,690,000 gal. in February against 33,452,000 gal. in February 1939.

Crude-oil and natural-gasoline production in the first quarter of this year totaled 1,712,576 bbl., an increase of 34.1 per cent above production in the corresponding 1939 period.

Rumania . .

Barter Deal in Doubt as Result of Restrictions

RECENT restrictions imposed on foreign oil companies operating in Rumania by the government petroleum commissioner leave in doubt fulfillment of a barter deal with Egypt.

Before restrictions reached their present severity the British controlled Rumanian companies, under the leadership of the Astra Romana (Royal Dutch-Shell) and with the participation of the Steaua Romana, Unirea and Dacia, concluded a compensation agreement with Egyptian authorities for the exchange of Egyptian cotton for Rumanian petroleum. The Rumanian oil companies named were to ship to Alexandria 145,000 bbl. of gas oil, 116,000 bbl. of kerosene, and 21,000 bbl. of lubricating oil. The high proportion of gas-oil shipments indicated that it was largely a case of deliveries of naval supplies. This deduction was supported by concentration of British naval power at Alexandria. Whether the exchange of Rumanian oil for Egyptian cotton was completed before Bucarest authorities capitulated to German demands for a greater share of exports has not been reported.

Italy . .

Demand for U. S. Products Falls Off

ITALIAN demand for United States' petroleum products was less in the first 8 months of the war than it was in the corresponding period a year earlier, according to a report issued by the Department of Commerce. An increase in the volume of lubricating-oil imports accounted almost exclusively for an almost 10 per cent gain in the dollar volume of those imports, however.

During the first 8 months of the war Italy imported 2,521,000 bbl. of crude oil against 4,032,000 bbl. in the like period a year before; 57,000 bbl. of gasoline and other petroleum fuel against 175,000 bbl.; 151,000 bbl. of gas oil and distillate fuel oil against none; 373,000 bbl. of residual fuel oil against 1,333,000 bbl.; 239,000 bbl. of red and pale lubricating oil against 114,000 bbl.; 254,000 bbl. of cylinder oils against 75,000 bbl., and 16,217,000 lb. of wax against 20,520,000 lb.

Argentina . .

THE Argentine Government oil company, Yacimientos Petroliferos Fiscales, is making rapid strides in expansion of its crude-oil production. The country remains dependent on outside petroleum supplies for about a third of the total consumption.

In the first 4 months of this year Y.P.F. produced 3,757,523 bbl., an increase of approximately 9 per cent over the same period in 1939. Most of the increase is coming from the Province of Mendoza, where the prolific Tupungato field is being exploited at an accelerated pace this year. Definite figures for production of private companies for the 4 months are not yet available, but will be in the vicinity of 2,455,000 bbl.

UNITED STATES SUPPLY AND DEMAND

Five months, 1940 and 1939 (All figures in thousands of barrels)

Crude Oil

5 Months—	Total supply	Total demand	Excess demand	Excess Pct.	Domestic production	Imports	Indicated domestic demand‡	Exports	Stocks refinable crude May 31
1940	590,665	567,801	*22,864	*4.0	576,211	14,454	547,078	20,723	‖261,839
Daily average	3,886	3,736	.....	..	3,791	95	3,599	136	.....
1939	530,740	528,188	*2,552	*0.5	518,784	11,956	499,070	29,118	278,087
Daily average	3,515	3,498	.....	..	3,436	79	3,305	193	.....
Increase, 1940	59,925	39,613	.....	..	57,427	2,498	48,008	†8,395	†16,248
	11.3%	7.5%	.....	..	11.1%	20.9%	9.6%	†28.8%	†5.8%

Refinery Products Motor Fuel

5 Months—	Total supply	Total demand	Excess demand	Excess Pct.	Domestic production	Imports	Domestic demand	Exports	Stocks May 31§
1940	251,938	233,672	*18,266	*7.8	251,877	61	223,163	10,509	99,388
Daily average	1,658	1,537	.....	..	1,657	.....	1,468	69	.....
1939	241,117	227,342	*13,775	*6.1	241,117	.....	208,406	13,936	84,654
Daily average	1,597	1,505	.....	..	1,597	.....	1,380	125	.....
Increase, 1940	10,821	6,330	.....	..	10,760	.....	14,757	†8,427	15,234
	4.5%	2.8%	.....	..	4.5%	.....	7.8%	†44.5%	18.9%

Kerosene

1940	30,788	33,055	2,267	6.9	30,788	.....	31,096	1,959	5,309
1939	28,498	29,746	1,248	4.2	28,498	.....	26,492	3,254	6,551
Increase, 1940	2,290	3,309	.....	..	2,290	.....	4,604	†1,295	†1,242
	8.0%	11.1%	.....	..	8.0%	.....	17.4%	†39.8%	†19.0%

Gas Oil and Residual Fuel Oil¶

1940	224,247	236,816	12,569	5.3	210,509	13,738	221,868	14,948	118,055
1939	197,082	216,791	19,709	9.9	190,213	6,869	196,019	20,772	124,557
Increase, 1940	27,165	20,025	.....	..	20,296	6,869	25,849	†5,824	†6,502
	13.8%	9.2%	.....	..	10.7%	100.0%	13.2%	†28.0%	†5.2%

Gas Oil and Distillate Fuels

1940	80,384	88,677	8,293	9.4	78,957	1,427	79,480	9,197	28,220
1939	66,195	77,111	10,916	14.2	66,024	171	64,032	13,079	27,813
Increase, 1940	14,189	11,566	.....	..	12,933	1,256	15,448	†3,882	407
	21.4%	15.0%	.....	..	19.6%	734.0%	24.1%	†29.7%	1.4%

Residual Fuel Oils

1940	143,863	148,139	4,276	2.9	131,552	12,311	142,388	5,751	89,835
1939	130,887	139,680	8,793	6.3	124,189	6,698	131,987	7,693	96,744
Increase, 1940	12,976	8,459	.....	..	7,363	5,613	10,401	†1,942	†6,909
	9.9%	6.1%	.....	..	5.9%	83.8%	7.9%	†25.2%	†7.1%

Lubricating Oils

1940	16,372	15,344	*1,028	*6.7	16,372	.....	9,660	5,684	8,170
1939	13,241	13,308	67	0.5	13,241	.....	9,151	4,157	7,630
Increase, 1940	5,167	2,036	.....	..	5,167	.....	509	1,527	540
	39.0%	15.3%	.....	..	39.0%	.....	5.6%	37.3%	7.8%

Petroleum Wax (Thousands of pounds)

1940	269,450	241,809	*27,641	*11.4	232,120	37,330	125,198	116,611	103,289
1939	196,042	211,457	15,415	7.6	182,840	13,202	111,433	100,024	113,925
Increase, 1940	73,408	30,352	.....	..	49,280	24,128	13,765	16,587	†10,636
	37.4%	14.4%	.....	..	27.0%	182.8%	12.4%	16.6%	†9.3%

*Excess supply. †Decrease. ‡Crude only. §Includes finished and unfinished refinery gasoline and natural gasolines. ¶Gas oil and fuel oil equals gas oil and distillate fuels plus residual. Note: Total supply equals domestic production plus imports. Total demand equals domestic demand plus exports. Data on demand for refined products based on refinery shipments. ‖Does not include 13,265,000 bbl. of heavy oils in California. Comparable figure for May 31, 1939, 14,492,000 bbl.

Crude Oil Run to Stills and Total All Oils

5 months—	Total imports§	Total exports§	Total crude to stills	Per cent yield gasoline‡	Natural gasoline production	Total supply all oils*	Total demand all oils*	Stocks all oils May 31*
1940	31,972	55,923	537,171	42.6	21,940	631,338	592,314	563,794
Daily average	210	368	3,534	...	144	4,154	3,897	.....
1939	22,163	77,167	491,386	44.6	20,755	562,541	560,619	568,968
Daily average	147	511	3,254	...	136	3,725	3,713	.....
Increase, 1940	9,809	†21,244	45,785	...	1,185	68,797	31,695	†5,174
	44.3%	†27.5%	9.3%	...	5.7%	12.2%	5.6%	†0.9%

*Total all oils include crude and refined products, natural gasoline, and benzol. Stocks May 31, 1940, represented 145 days' supply, which compares to 153 days on the same date in 1939. †Decrease. ‡Does not include natural gasoline blended at refineries. §Includes crude oil and refinery products. In case of imports includes receipts in bond and for domestic use. All data based on Bureau of Mines reports.

Record Demand in Prospect Over Remainder of Year

(Continued from Page 53)

and this fact will tend to reduce the percentage increases for the same period this year, although conditions are equally favorable. The estimate of demand for all products assumes that expenditures for the national-defense program and other industrial developments assure a comparatively high general business level.

Although this demand outlet is favorable a study of the data in this issue will reveal the necessity of conservative operations in both the producing and refining branches of the industry. If further additions to crude-oil stocks are to be avoided, the average production for the last 184 days of the year must be less than the 182 days which comprised the first half year. There is the further fact that gasoline stocks have been excessive since the first of the year. If they are reduced 25,000,000 bbl. from their present levels by October 1, as economists of the industry have advocated, refinery operations must be kept at a lower level for the next 5 months than otherwise would have been necessary. The reductions which have been made in crude production and crude runs to stills since July 1, if continued over the next 90 days, would aid materially in bringing about a balance in supply and demand, including a correction for the excess operations of the past several months.

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THE MARKETS*

CRUDE OIL: Mid-Continent grade crude price cuts of the week ended June 20 have been localized so far in North Texas, the Mexia district of East Texas and in southern Oklahoma. Another reduction in Illinois production added to the recent strength shown by the crude market in that state. La Salle Petroleum Corp. joined Panhandle Refining Co. and Sinclair Prairie Oil Marketing Co. in posting a flat price of 75 cents per barrel in North Texas. La Salle purchases approximately 1,000 bbl. daily in the area.

REFINERY: Bunker fuel oil was increased to 90 cents per barrel at Los Angeles, an advance of 15 cents, by Standard Oil Co. of California. Oklahoma bright stock lubricating-oil quotations were lowered a cent per gallon on July 19. Low-octane gasoline and light furnace oils were offered an eighth to a quarter of a cent lower this week in the Mid-Continent area. Regular grades of refinery gasoline and the general market for natural are unchanged.

TANK-WAGON AND POSTED DEALER: Lower tank-wagon prices for gasoline were posted at scattered points. Third-structure gasoline was off 0.5 at Cheyenne, Wyo., both regular and third-structure grades were off a cent at Albuquerque, N. M., and regular dealer prices were down 3.75 cents at Chattanooga, Tenn. A reduction of 0.2 cent was posted at Grand Rapids, Mich.

FINANCIAL: The moderate gain of oil securities of the past few weeks was continued. Average of 30 active stocks for week ended July 20: High, 21.38; low, 20.90; close 21.12. Week ended July 13: High, 21.34; low, 20.54; close, 20.97.

*Detailed information in Market Section.

SEMIANNUAL SECTION STARTS ON NEXT PAGE

Drilling in the United States Approaches All-Time High

AN increase of 2,586 in wells completed in the United States during the first half of 1940 as compared with the same period last year brought the total number of completions to 15,053. This is only 69 below the number recorded during the first half of the peak year of 1937. Dry holes totaled 3,132, which was 40 more than last year and 242 more than in the first half of 1937. Gas wells increased from 866 to 941 and there were 2,361 more producing oil wells drilled than in the first half of 1939. Nearly half of this increase came in the eastern fields, but there was a general revival of drilling activity throughout the country. Seventy-two per cent of all of the completions were oil wells as compared with 69 per cent last year, while the percentages of gas wells were 6.3 and 6.9, respectively.

Summary of Completed Work in All Fields of the United States in First 6 Months of 1940 and in the Same Period of 1939

	First 6 mo.	Comp.	Init. prod. (bbl.)	Dry holes	Gas wells	Oil wells	Av. init. prod. (bbl.)
Eastern fields	1940	2,975	6,760	150	339	2,486	2.72
	1939	1,771	37,758	117	319	1,335	28.28
Ohio	1940	501	2,048	171	175	155	13.21
	1939	282	609	117	148	67	9.06
Michigan	1940	602	75,266	232	20	350	215.05
	1939	670	243,351	271	18	381	638.72
Indiana	1940	190	8,240	93	20	77	107.01
	1939	102	5,115	52	16	34	150.44
Kentucky	1940	245	3,983	100	49	96	41.49
	1939	332	8,045	149	59	124	64.97
Alabama	1940	2	0	2	0	0	....
	1939	1	0	1	0	0	....
Georgia	1940	0	0	0	0	0	....
	1939	1	0	1	0	0	....
Florida	1940	1	0	1	0	0	....
	1939	2	0	2	0	0	....
Mississippi	1940	104	37,385	48	0	56	667.59
	1939	5	0	5	0	0	....
Illinois	1940	1,812	1,106,047	275	15	1,522	726.70
	1939	1,611	333,260	274	9	1,328	250.95
Kansas	1940	872	235,454	159	28	685	343.73
	1939	558	175,962	133	24	401	438.81
Oklahoma	1940	886	107,316	336	68	482	222.65
	1939	900	116,165	279	62	559	207.81
N. Central Texas	1940	1,486	483,093	515	21	950	508.52
	1939	1,194	307,323	515	21	658	467.36
West Texas	1940	1,022	854,129	62	5	955	894.38
	1939	888	685,401	76	3	809	847.22
E. C. and E. Texas.	1940	250	18,752	44	28	178	105.35
	1939	365	20,367	61	15	289	70.47
E. Texas Border	1940	30	835	12	4	14	59.64
	1939	29	6,480	6	3	20	324.00
Texas Panhandle	1940	277	71,706	10	41	226	317.29
	1939	181	44,966	19	38	124	362.63
Gulf Coast Texas	1940	643	144,859	126	18	499	290.30
	1939	684	161,676	117	33	534	302.77
Southwest Texas	1940	1,164	89,867	405	37	722	124.47
	1939	1,262	118,658	358	35	869	136.54
North Louisiana	1940	289	23,326	51	36	202	115.47
	1939	265	40,295	86	35	144	279.83
Gulf Coast La.	1940	508	127,003	106	5	297	319.91
	1939	319	62,876	107	7	205	306.71
Arkansas	1940	89	19,315	28	1	60	321.92
	1939	121	44,300	34	1	86	515.12
Montana	1940	88	7,255	16	6	66	109.92
	1939	77	5,144	16	7	54	95.27
Wyoming	1940	74	47,815	16	3	55	869.35
	1939	46	28,703	16	0	30	956.77
Colorado	1940	6	531	4	0	2	265.50
	1939	11	390	8	1	2	195.00
New Mexico	1940	372	112,560	61	14	297	378.99
	1939	273	120,807	37	8	228	529.82
Nebraska	1940	2	744	1	0	1	744.00
	1939	1	0	1	0	0	....
Missouri	1940	17	0	15	2	0	....
	1939	6	0	6	0	0	....
Utah	1940	1	0	0	1	0	....
	1939	0	0	0	0	0	....
California	1940	545	396,247	93	10	442	896.48
	1939	519	345,716	137	4	378	914.59
First 6 months	1940	15,053	3,980,536	3,132	946	10,965	362.86
First 6 months	1939	12,467	2,913,367	2,992	866	8,609	338.41
Difference	....	2,586	1,067,169	140	80	2,356	28.34
First 6 months	1938	13,536	3,589,429	2,855	958	9,721	369.25
First 6 months	1937	15,122	3,861,454	2,890	1,100	11,132	346.88
First 6 months	1936	11,706	3,123,904	2,535	813	8,358	373.76
First 6 months	1935	10,329	2,394,274	2,328	644	7,357	325.44

Eastern Fields

Of the 2,975 completions in the eastern fields, 2,149 were in the Bradford and Allegheny districts, 82 in the middle district of Pennsylvania, and 35 in the Butler-Armstrong district of Pennsylvania. This represents an increase of some 80 per cent in this area, in which crude-oil prices were close to a 10-year high for nearly 5 of the first 6 months of the year.

In Southwest Pennsylvania completions more than doubled from 63 wells to 130, of which 83 were gas wells. Southeast Ohio also enjoyed a more active year with an increase in completions of 67 per cent, or from 152 to 253, of which 40 were dry holes and 50 were gas wells. West Virginia continued active as a gas area with 180 producing gas wells as compared with 170, while 42 dry holes were drilled and 64 small oil wells. In the North Oriskany gas area there was a falling off in activity and 12 gas wells and 28 dry holes were drilled as opposed to 23 gas wells and 28 dry holes in the first half of 1939.

Ohio

As drilling almost completely ceased in the old Lima fields, central and eastern Ohio continued the expansion noted during 1939. In spite of the high prices prevailing for gas in this area, there is not so much drilling for gas as in the past and gas completions dropped from 221 to 175. At the same time, oil wells more than doubled from 67 to 155 and initial production increased by an average of about 50 per cent.

Kentucky

Drilling in Kentucky declined by about 25 per cent and the results were not encouraging. As usual the bulk of the activity in the eastern part of the state was confined to gas wells which are long-lived although of small size. Here only 19 oil wells were completed during the half year. In the western part of the state 77 oil wells were completed for an average production of under 50 bbl. and 98 dry holes were drilled in obtaining this production. The greater part of the activity was in the Ohio-Daviess county sector where McClosky production is encountered.

Michigan

Three hundred fifty wells were completed in Michigan as compared with 381 in the first half of 1939. However, the average initial production was only about one-third as great as most of these wells were late wells in the Walker, Freeman-Redding, or Allegan and Van Buren County pools. The only area of expanding activity in Michigan at the present time is the Wise pool in Isabella County. Wildcatting in Michigan is being carried on steadily but with comparatively little success although as the half year ended there were interesting prospects in Huron and Gladwin counties.

Indiana

During the past half year oil wells completed in Indiana increased from 34 to 77, but average initial production declined by about 30 per cent. Most of the activity was along the Illinois State line, in Gibson, Spencer, and Posey counties. The most important pool is the Griffin pool in Gibson County, which also extends into Illinois. Again, the number of dry holes drilled in Indiana exceeded the oil producers as 93 dry holes were drilled.

Illinois

The drilling boom in Illinois showed no signs of slackening during the first half of 1940 as the Devonian was drilled up, first

at Salem and then at Centralia. Two hundred one more wells were completed in the first half of 1940 than in the corresponding period of 1939, 1,812 as compared with 1,611. The number of dry holes was almost exactly the same—275 to 274—and the number of oil wells was 1,522 to 1,328. Initial production averaged nearly three times as great, due to the prolific Devonian pay. As the half year ended, the end of the Devonian drilling campaign was in sight, and unless new fields are discovered and rapidly developed, it is believed that drilling in Illinois will decline.

Besides the 244 completions in Clinton County and the 640 in Marion County, there were also 305 in Fayette County where the Louden pool is located. Other active counties were White, where the Storms pool was drilled up and three small pools discovered, Wabash and Richland. There has been no important territory opened in Illinois during the past 6 months and operators generally look for a decline both in production and activity in that state in the near future.

Missouri and Nebraska

In spite of the active leasing campaign, which is now over 2 years old, and the number of wildcats that have been drilled, Missouri has not yet shown much promise of developing into an active oil area. This situation may change at any time, of course, but present indications are not too encouraging.

Nebraska, with much less activity, has a much better record. Actually, the state is credited with three pools at the present time, although two of the wells were not officially completed by the end of the half year.

Kansas

There have been years when it has seemed almost impossible to drill a dry wildcat in Kansas, but the last half year was not one of these periods. Out of 88 wildcats, 13 found oil and 3 found gas for a productive percentage of 17.18. During the first half of 1940 drilling increased 57 per cent over the first half of 1939 as more inside and proven locations were drilled up. Altogether 685 oil wells were drilled in the state, compared with 401 last year, an increase of 71 per cent, while the dry holes only increased from 133 to 159.

Approximately half of the activity was concentrated in four counties—Barton, Ellis, Rice, and Russell—with Ellsworth, McPherson, Cowley, and Stafford in the second rank. However, no part of Kansas was idle from the Forest City basin in the northeast to the Hugoton gas area in the southwest. Kansas operators may be counting too heavily on making hay when Illinois' sun goes down but they are at least going to be prepared.

Oklahoma

There was almost as much activity in Oklahoma during the first half of 1940 as in 1939, with 885 wells compared with 900, but there were only 482 oil wells, or 77 fewer than in the corresponding period of the previous year. Initial production averaged slightly higher. Pottawatomie and Creek counties led in activity, with about 10 per cent of the state's total each, while several counties had more than 5 per cent, or 45 wells each. These included Caddo (Cement field), Hughes, Okfuskee, Okmulgee, Pontotoc, and Seminole. From this list it is apparent that drilling is not extending out into new areas in Oklahoma to the same extent as in other states. In fact, the old area around Tulsa is being as actively prospected as any in the state.

The most promising prospect in Oklahoma for some time is the Pure discovery in the Cumberland area in Marshall and Bryan counties. Five wells are now drilling and two are planned and further prospecting will undoubtedly follow if the area develops to even a fraction of the extent of some of the prophecies regarding it.

North Louisiana-Arkansas

North Louisiana showed a slight increase in activity over the same period a year ago, while Arkansas showed a corresponding decrease. In the former state approximately half of the activity was in Caddo Parish, in the old Caddo field and in the newly discovered Olla field. Most of the drilling in Arkansas was in the Magnolia field which became the state's most productive field during the half year.

Mississippi

The greatest percentage increase in the producing states over the first half of 1939 was in Mississippi, where 104 wells were completed as against 5 a year ago. Of these, 56 were producers, all in Yazoo County, and nearly all in the Tinsley field. Also during the half year, the Pickens field was discovered and partially defined. Outside of Yazoo County 34 tests were drilled and all of them were dry.

Coastal Louisiana

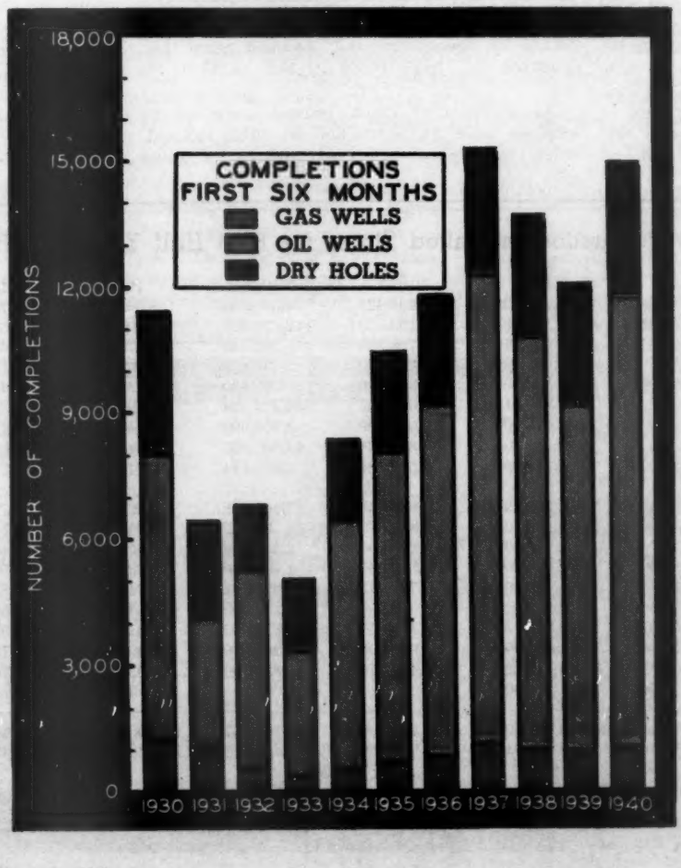
There was a considerable increase in activity on the Louisiana Gulf Coast, completions rising from 319 to 508. Nine new pools were discovered, of which three found the pay below 11,000 ft. These were Delta Farms, Erath, and Niblett Farms. The most active areas were Golden Meadow, with 76 completions, and Eola, Charenton, and Ville Platte with 40, 36, and 35, respectively. In spite of the 65 per cent increase in completions, the number of dry holes remained practically unchanged, 106, indicating that the greater part of the activity in the area was the drilling up of fields previously discovered. This resulted in the discovery of new sands on the Chalkley, Barataria, Golden Meadow, Grand Bay, and Eola field.

Texas Gulf and Southwest Texas

Activity slackened slightly along the upper Gulf Coast district of Texas, completions dropping off from 684 wells to 643. Here the most active area was the West Ranch field, where 88 wells were completed, 85 of which were producers, followed by Thompson with 53 completions. Probably the most important of the half year's discoveries is the Lolita field in Jackson County, which closely resembles the neighboring West Ranch field. This latter field has now established one of the largest reserves of the district.

In the Southwest Texas district the number of completions dropped from 1,262 in the first half of 1939 to 1,164 in the first half of 1940, while the number of dry holes increased from 358 to 405. Production has accordingly declined in the Laredo and San Antonio districts, although it increased slightly in the Corpus Christi area. The extension of the Wilcox play into the area may cause an increase in activity during the second half year. The most active individual areas were East White Point, McCampbell, and Adami, with 64, 60, and 50 wells, respectively, but a feature which distinguishes this area from almost any other section of Texas is the 226 scattered wells which were drilled in the hope of finding new production. Southwest Texas probably sees more wildcatting than any other section of Texas in spite of the hazards involved in high gas pressures and in the relatively small initial recoveries which average less than in any other part of the state, except the Border section.

Relationship of drilling operations for the first 6 months of each year since 1930, showing number of oil wells, gas wells and dry holes completed



East Texas

Completions in East and East Central Texas dropped off nearly 30 per cent to 250 wells due to great decline in activities in the East Texas field. Wildcatting in the area brought little return although there was a small Pettit lime discovery at Chapel Hill in Smith County. Most of the fields in this district are drilled up and unless new fields are opened up, further declines in activity are probable.

North Central Texas

Ever since the revival of K.M.A. stirred operators in the North Central Texas area, the district has been active and discoveries have been frequent. During the past 6 months, the Fort Worth basin has been the scene of an intensive leasing play and drilling has taken place around the northern rim, particularly in Montague and Clay counties. At the same time, the older producing areas have been far from idle with the results that completions are running about 25 per cent ahead of a year ago, or 1,486 for the half year with dry holes at exactly the same figure, 515. Archer and Wichita counties saw 596 of these completions in the K.M.A. and Hull-Silk pools, principally, but there were also more than 100 wells drilled in Clay, Cooke and

(Continued on Page 197)

First Six Months' Production Establishes New Peak

By W. V. HOWARD

CRUDE-OIL production in the United States during the first half of 1940 amounted to 684,733,094 bbl., representing an increase of 68,279,879 bbl. over the first half of 1939 and of 65,572,227 bbl. over the peak first half year of 1937. These increases of 11.1 per cent and 10.6 per cent, respectively, took place in the face of a declining export market and have resulted in an unfavorable situation as regards stocks of crude and of gasoline.

Nearly two-thirds of the total increase was registered by Illinois which increased its production 45,870,095 bbl. to move into third place with a total production for the half year of 78,576,843 bbl. Oklahoma dropped into fourth place with a net loss of 6,059,323 bbl. and a total production of 75,771,721 bbl.

Texas increased its production 13,464,594 bbl. to an all-time high of 255,501,195 bbl. Other states recorded notable gains, particularly Kansas with a gain of 4,226,402 bbl. and Arkansas and Wyoming staged a come-back with gains of 3,018,880 bbl. and 2,397,562 bbl. respectively. Mississippi entered the list of producing states with a jump to 1,335,037 bbl. which placed it above others with much longer records.

Crude-oil production for the first half of 1940 was 684,733,094 bbl. This represents an increase of 11.1 per cent over the first half of 1939 and an increase of 10.6 per cent over the first half of the previous peak year of 1937. Average daily production of 3,762,270 bbl. is 56.5 per cent greater than in 1933, and by far the greatest part of this increase is due to a rise in domestic demand. Of the nation's supply 58.8 per cent or 404,400,039 bbl. came from 75 fields of which East Texas produced 71,856,874 bbl.

Texas Production

In the different districts of Texas, there is considerable variation in production. North and West Central Texas increased its production from 20,687,428 bbl. in the first half of 1939 to 24,952,561 in 1940. West Texas also enjoyed an increase from 38,374,437 bbl. to 44,268,824 bbl. In the Panhandle, the increase was smaller, but still of respectable proportions, as 12,098,171 bbl. in 1939 increased to 13,651,886 in 1940. East Central Texas, on the other hand, declined more than 2,000,000 bbl. from 16,993,193 bbl. to 14,911,482 bbl.

Along the Gulf Coast, coastal Louisiana increased from 34,758,179 bbl. to 39,391,700 bbl., while the Upper Gulf Coast district of Texas gained about 10 per cent from 39,518,864 bbl. to 43,410,109 bbl. In Southwest Texas, a small gain of from 23,962,585 bbl. to 24,474,961 bbl. in the Corpus Christi district was more than offset by losses in the San Antonio and Laredo districts. In the former, production dropped from 4,459,352 bbl. to 4,061,912 bbl. and in the latter area from 14,601,038 bbl. to 13,912,579 bbl.

Omitting Missouri, Utah and Tennessee, there are 19 oil-producing states. Of these 19 states, 11 reached an 8-year peak in 1940 so that we are apparently still a long way from depletion of our oil reserves.

Conservation

Owing to the failure of the state legislature to pass any conservation measure in Illinois, little attempt was made to restrict production. Consequently Devonian drilling campaigns, first at Salem and later at Centralia drove production from a daily average of 332,572 bbl. for the first week of the year to a high point of 518,224 bbl. during the week ended June 29. Opinion appears to be general that the state will not remain long near the half-million mark, but Illinois has proved all pessimists wrong frequently in the past and may do so again. However, the fact remains that Centralia's Devonian production is now showing a decline and even during weeks when 12,000-bbl. wells are reported, the field as a whole has dropped below the 100,000-bbl. mark.

In California production remained almost exactly stationary, due to the efforts of the Central Committee of California Oil Producers, the official curtailment group. The state's allotment has been cut slightly from 599,000 bbl. in January to 592,000 bbl. in June, but the number of wells has

Crude Production in United States for First Half Year 1933-1940

	1933	1934	1935	1936	1937	1938	1939	1940	Increase or decrease
Arkansas	5,556,924	5,584,605	5,604,691	5,439,422	4,930,253	8,508,090	9,782,061	12,800,941	3,018,880
California	84,407,535	86,459,456	91,134,085	108,160,769	112,070,297	128,203,431	111,680,473	111,237,829	—442,644
Colorado	454,502	500,418	799,844	793,939	761,587	670,025	693,133	717,644	24,511
Illinois	1,764,000	2,283,000	2,062,000	2,126,000	2,358,000	7,807,255	32,706,748	78,576,843	45,870,095
Indiana	300,000	400,000	370,000	380,000	397,000	436,000	393,000	1,725,000	1,332,000
Kansas	19,257,576	22,462,228	26,339,919	27,053,492	34,325,834	29,398,746	29,359,080	30,439,864	1,080,784
Kentucky	2,216,000	2,098,000	2,647,000	2,648,000	2,750,000	2,645,000	2,723,252	2,579,000	—144,252
Louisiana	12,168,118	13,918,051	22,321,868	37,870,966	44,407,067	46,548,440	48,014,939	52,241,341	4,226,402
Michigan	2,730,000	5,325,000	7,013,000	6,522,837	6,934,784	9,745,025	11,236,956	11,151,711	—85,245
Mississippi	.....	.....	.....	.....	.....	.....	.....	1,335,037	1,335,037
Montana	1,075,239	1,399,599	1,933,704	2,683,543	2,961,228	2,424,600	2,711,510	3,241,554	530,044
New Mexico	6,386,350	7,851,605	9,429,807	12,344,519	18,594,592	17,960,241	19,149,653	19,981,087	831,434
New York	1,484,000	1,779,000	2,070,000	2,220,000	2,231,000	2,605,000	2,463,000	2,642,000	179,000
Ohio	2,067,000	2,086,000	2,064,000	1,919,000	1,765,000	1,636,000	1,576,000	1,527,000	—49,000
Oklahoma	80,157,672	91,123,782	91,029,607	97,707,445	113,908,732	87,741,228	81,831,044	75,771,721	—6,059,323
Pennsylvania	5,934,000	7,764,000	7,977,000	8,043,000	9,132,000	9,169,000	8,507,000	9,304,000	797,000
Texas	201,816,854	187,059,679	192,527,427	208,496,955	249,892,499	230,619,098	242,036,601	255,501,195	13,464,596
West Virginia	1,732,000	2,013,000	1,994,000	1,901,000	1,909,000	1,877,000	1,793,000	1,752,000	—41,000
Wyoming	5,537,278	5,802,926	6,349,226	6,454,110	9,832,294	9,024,307	9,760,765	12,158,327	2,397,562
Miscellaneous*	2,000	1,000	4,000	.....	.....	33,000	35,000	49,000	14,000
Total	435,046,048	445,914,349	473,667,290	532,764,997	619,160,867	597,051,486	616,453,215	684,733,094	68,279,879
Daily average	2,403,569	2,518,863	2,616,946	2,927,280	3,420,778	3,298,627	3,405,819	3,762,270	.....

*Miscellaneous includes Missouri, Utah and Tennessee.

been increasing due to drilling requirements. Consequently top allowables have declined from 195 bbl. in January to 172 bbl. in June with further reductions in prospect. Obviously, as operators drill new wells for whatever reason, other operators who may not be under the same compulsion are forced to drill also or lose their proportionate share of the state's production. The result is an intensive drilling campaign which is resulting in the drilling up of the known fields at a rate faster than market demands warrant.

In Kansas, leasing and offset requirements are also forcing operators to drill up their acreage rapidly and as production is not being permitted to increase, allowables are dropping. Kansas, however, expects to benefit from a decline in Illinois production.

Michigan's proration regulations are limited at present to the placing of top allowables on flush and semiflush production. This limited proration has prolonged Michigan's production over a space of 18 months at about a uniform rate, but unless new fields are discovered, it is expected that there will soon be very few wells on proration and production will decline. At present the state cannot supply its refinery capacity and is importing some 20,000 bbl. daily from Illinois.

75 Largest Fields

The 75 largest fields produced a total of 404,400,039 bbl. during the first half year, or 58.8 per cent of the country's total production. The same fields produced 350,177,369 bbl. during the first half of 1939, although, of course, all were not among the 75 largest fields at that time. Of the 10 largest fields, Salem and Louden show large increases, East Texas shows a small increase and the remainder show decreases, although none of large proportions. The total production for these fields, which occupied the 10 leading positions during each half year was 206,949,653 bbl. in 1940 and 176,536,490 bbl. in 1939. Thus the 10 leading fields produced 30.2 per cent of the country's oil during the past 6 months, and the increased production of these 10 fields was nearly half of the total increase for the United States as a whole.

The next group of 10 fields shows others which are moving up and threaten to displace some of the leaders, particularly Santa Maria Valley and Wasson. K.M.A. and Centralia also had large increases, but it is believed that these are at or near their peak. This group as a whole increased its production to 53,936,123 bbl. from 41,472,409 bbl. and only St. Louis and Conroe showed declining production.

PRODUCTION—75 LARGEST FIELDS

Field—	First 6 months 1940	First 6 months 1939
East Texas, Texas	71,856,874	71,341,523
Salem, Illinois	43,847,764	17,117,978
Oklahoma City, Okla.	17,919,806	19,031,537
Wilmington, California	15,174,787	15,445,988
Louden, Illinois	13,318,743	6,420,418
Rodessa, Tex-La-Ark	10,948,657	11,177,518
Midway-Sunset, California	9,467,707	9,767,012
Kettleman Hills, California	8,714,593	9,988,878
Long Beach, California	8,144,772	8,746,638
Bradford-Allegheny, Pa.-N. Y.	7,555,950	7,500,000
Gray County, Texas	6,361,479	5,378,760
Santa Maria Valley, California	6,338,489	3,062,311
K.M.A., Texas	6,286,179	3,856,788
Wasson, Texas	5,669,744	2,390,881
Centralia, Illinois	5,400,116	1,223,945
St. Louis, Oklahoma	5,204,247	6,058,425
Huntington Beach, California	4,866,917	5,117,410
Santa Fe Springs, California	4,738,989	5,122,102
Hutchinson County, Texas	4,553,478	4,195,143
Conroe, Texas	4,516,485	5,066,644
Coalinga, California	4,400,776	2,004,114
Lance Creek, Wyoming	4,337,164	2,690,319
Goldsmith, Texas	4,332,847	3,427,705
Talco, Texas	4,279,701	5,431,327
Montebello, California	4,103,232	2,923,901
Yates, Texas	3,929,866	3,787,356
Dominguez, California	3,714,044	3,773,883
Magnolia, Arkansas	3,633,995	804,414
Monument, New Mexico	3,625,409	4,390,471
Eunice, New Mexico	3,476,378	4,192,818
Fitts, Oklahoma	3,423,396	5,303,294
Schuler, Arkansas	3,367,858	3,313,534
Tomoconnor, Texas	3,217,852	2,349,958
Saxet, Texas	3,055,117	4,989,628
Walker, Michigan	2,932,973	377,744
Hastings, Texas	2,986,692	3,356,302
Evangeline, Louisiana	2,880,566	4,782,878
Smackover, Arkansas	2,831,201	3,052,642
Cotton Valley, Louisiana	2,685,696	2,251,248
Van, Texas	2,642,646	2,563,895
Salt Creek, Wyoming	2,640,214	2,765,183
Howard-Glasscock, Texas	2,634,778	2,558,877
Clay City, Illinois	2,560,424	3,036,149
Thompson, Texas	2,494,117	1,966,419
Vacuum, New Mexico	2,478,247	1,267,052
Ville Platte, Louisiana	2,476,718	1,373,195
Freeman-Redding, Michigan	2,409,327	2,207,004
Trapp, Kansas	2,396,646	1,626,009
Silica, Kansas	2,327,265	1,804,989
Inglewood, California	2,274,840	2,242,690
Lafitte, Louisiana	2,231,694	1,704,953
Elk Hills, California	2,200,494	1,831,755
McCamey, Texas	2,184,556	2,504,277
Torrance, California	2,166,743	3,719,340
Kern River, California	2,107,366	1,973,382
Old Ocean, Texas	2,089,839	1,318,819
Hobbs, New Mexico	2,051,493	2,402,336
North Cowden, Texas	2,025,113	1,728,088
North Belridge, California	1,999,651	2,172,657
Eola, Louisiana	1,995,750	78,334
Foster, Texas	1,976,256	1,378,678
Dickinson, Texas	1,952,914	1,660,686
Golden Meadow, Louisiana	1,936,146	28,977
Earlsboro, Oklahoma	1,918,133	1,966,992
Cut Bank, Wyoming	1,912,553	1,575,626
Government Wells, Texas	1,882,549	1,880,587
Iowa, Louisiana	1,863,067	2,483,713
Heyser, Texas	1,857,596	1,670,006
North Sweden, Texas	1,836,633	1,797,234
Kermit, Texas	1,826,176	2,671,359
McCampbell, Texas	1,798,883	1,412,738
University, Louisiana	1,791,612	311,909
Rosecrans, California	1,788,275	2,544,779
Cayuga, Texas	1,787,714	1,343,066
Mount Poso, California	1,773,052	2,363,181
Total 75 largest fields	404,400,039	350,177,369
Total 75 largest fields first half 1939	365,120,168	

In the third group of 10 fields, there is one mushroom field, Magnolia, which jumped suddenly into prominence, but this group is characterized mainly by the steady growth by means of extensions, the discovery of new sands or increasing allowables of such fields as Coalinga, Lance Creek, Goldsmith, Montebello, and Yates.

Thus, of the 30 leading fields in the United States, 10 show a rapid increase in production, 5 others show a moderate increase and 15 show a gradual decline. This compares very favorably with the sudden rises and precipitous drops of a little more than a decade ago before the days of conservation and production control.

Comparing the less prolific 60 per cent of our 75 leading fields with lists of former years, one is struck by the absence of many famous fields which once ranked among the leaders. Hendricks, Spindletop, all of the Seminole fields except Earlsboro, Burbank, El Dorado (both Kansas and Arkansas), Caddo, and many others have declined below the 10,000-bbl.-per-day class that is necessary for admission into the select ranks. Another fact of interest is that some states are represented by so few fields. Kansas, for example, has but two in the list, Trapp and Silica, in spite of its 30,439,864-bbl. production and its much greater potential production.

A field in which there is an increase in production is not necessarily still under development as a loosening of proration restrictions might result in such an increase, but when increases in production of over 10 per cent are recorded, these fields are definitely expanding. Of the 75 largest fields, 32 show increases in production of over 10 per cent. On another page, it is shown that the discoveries of the first half year do not compensate for the withdrawals during the same period. The record of the producing fields, however, shows that it is entirely probable that many of these discoveries will have the same record as discoveries recorded in previous years and the fields may continue to expand over a period of years so that the cumulative total will far outweigh present withdrawals.

Modern development and production programs no longer follow the old pattern of a sudden rise to a peak and as sudden a drop. The rise is more gradual, the peak lower and the decline is not only postponed but is also much slower. Records are now available to show that the old expected recoveries of from 25 per cent to 35 per cent of the oil in the reservoir can be greatly exceeded, to the greater profit of operators, the public, and the nation alike.

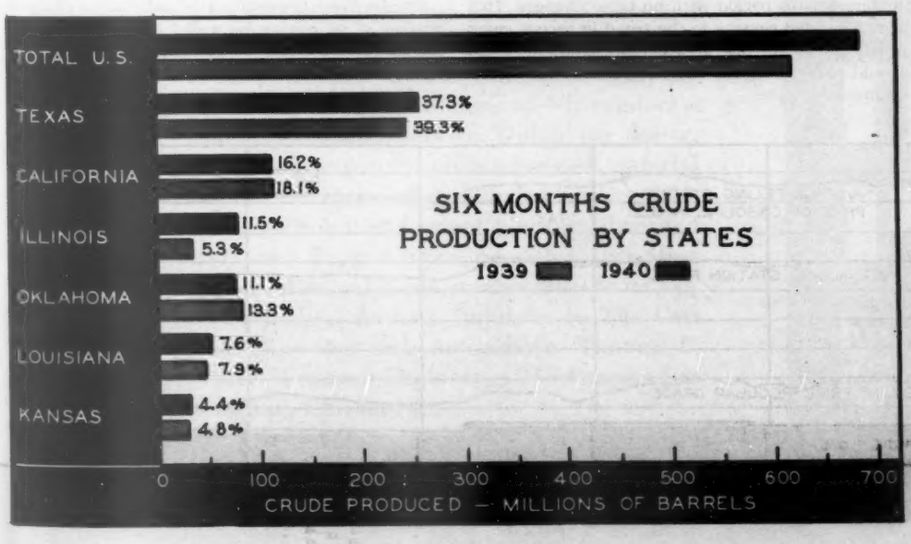


Chart showing relative proportion of oil produced by major oil-producing states. These six states now produce 88.1 per cent of the nation's oil

Drop in Service-Station Prices Is General Throughout U. S.

By D. H. STORMONT

IN only one year since 1930 has the average service-station price for gasoline been as low as that for the 6-month period just closed. In the first half of 1933 motorists paid only an average of 11.9 cents per gallon for their regular-grade motor fuel, exclusive of all city, county, state, and federal taxes. Since then the average 6-month prices have been consistently higher than this all-time low figure. During the first half of 1940 the average station price was 13.08 cents—substantially higher than the 1933 figure, but almost ½ cent lower than the average for any first 6-month period since that time. These average prices were arrived at by taking the pump prices in 50 cities on the first day of each month as a basis.

The decrease in service-station prices was general throughout the United States except that in the central states the average price in that district's 17 cities declined only from 12.4 to 12.3 cents per gallon. On the East Coast and in the New England states the average price for 11 cities declined from 12.1 to 11.4 cents; in the southeastern states the decline was greater for the average of 11 cities, from 13.9 to 12.9 cents. Geographical areas showing the greatest decrease, however, were the Midwest and West Coast. In the former the average price of eight cities declined from 16.3 to 14.7 cents, while on the West Coast the average of its three cities fell from 14.8 to 13.3 cents per gallon.

Many Changes on East Coast

The East Coast and New England districts during the first 6 months witnessed the greatest amount of fluctuation that has taken place in that area in several years. During the first few months the above-normal tanker rates from the Gulf Coast acted to stabilize the East Coast price by offsetting the depressed Gulf Coast market. As gasoline stocks continued to mount on the Gulf Coast, coupled with a slight decline in tanker rates, the refined-products market on the East Coast began slipping. Service-station prices in a few of that area's cities began dropping in the latter part of March, and then in May the weakened gasoline market resulted in a wholesale reduction of service-station prices. As a result only two cities in that area did not feel the effect and underwent the period with no price changes. This was a decided reverse to the trend in recent years when many of the area's representative cities would pass through a 6-month period without any changes in price.

On the West Coast filing of indictment charges against 39 oil companies and 2 trade associations for illegal conspiracy to artificially maintain gasoline prices in the Pacific Coast territory resulted in that area losing the stability which has charac-

Year-to-Year Trend of Retail Gasoline Prices

Average Service-Station Prices in Cents in 50 Representative Cities, Exclusive of Tax

	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
January 1	17.23	14.56	12.87	12.54	14.32	12.90	13.70	14.09	14.08	13.23	13.44
February 1	16.96	14.83	12.97	11.63	13.87	13.16	14.21	14.10	14.07	12.80	13.40
March 1	16.28	14.86	12.91	11.49	14.18	13.22	14.22	14.46	13.99	13.01	13.25
April 1	15.92	13.66	13.18	11.58	14.57	13.28	13.87	14.47	14.12	13.08	13.10
May 1	16.95	12.40	13.59	11.60	13.55	13.64	14.27	14.55	14.08	13.20	12.95
June 1	17.01	12.21	13.68	10.82	13.93	13.90	14.31	14.58	14.05	13.27	12.70
July 1	16.56	12.46	14.21	13.06	14.06	14.00	14.26	14.42	14.08	13.52	12.72
August 1	16.47	12.41	14.02	13.52	13.98	14.10	14.24	14.54	14.08	13.40	.....
September 1	16.26	12.21	13.65	14.00	13.89	13.78	14.21	14.53	13.97	13.49	.....
October 1	15.93	12.34	12.46	14.45	13.55	13.42	14.07	14.49	13.75	13.40	.....
November 1	15.41	12.32	13.04	14.30	11.92	13.46	13.99	14.45	13.39	13.61	.....
December 1	14.96	12.89	12.96	14.17	12.43	13.69	13.97	14.13	13.27	13.44	.....
Average	16.33	13.09	13.30	12.76	13.60	13.55	14.11	14.40	13.91	13.29	13.08

Comparison of Net Service-Station Prices January 1, 1940, and July 1, 1940

Atlantic and New England States

	Jan. 1, 1940	July 1, 1940
Portland, Me.	12.5	12.0
Burlington, Vt.	13.5	11.95
Hartford, Conn.	12.0	9.5
Boston, Mass.	11.5	9.8
New York, N. Y.	12.5	11.6
Philadelphia, Pa.	12.0	11.5
Providence, R. I.	10.0	8.9
Newark, N. J.	12.9	12.9
Baltimore, Md.	12.25	12.25
Dover, Del.	12.0	12.5
Washington, D. C.	12.5	12.5
Average	12.1	11.4

Central

Fargo, N. D.	14.7	14.7
Huron, S. D.	14.0	14.0
Wichita, Kans.	10.6	11.1
Omaha, Neb.	10.5	11.9
Tulsa, Okla.	10.0	10.0
Dallas, Tex.	11.0	10.0
Little Rock, Ark.	13.75	13.25
Kansas City, Mo.	12.4	12.4
Des Moines, Iowa	11.9	11.9
Duluth, Minn.	13.9	13.9
Minneapolis, Minn.	13.0	12.0
Milwaukee, Wis.	13.3	13.3
Chicago, Ill.	12.6	12.6
Peoria, Ill.	12.2	12.2
Detroit, Mich.	11.6	11.6
Indianapolis, Ind.	12.8	12.8
Cleveland, Ohio	11.5	11.0
Average	12.4	12.3

Southeastern

	Jan. 1, 1940	July 1, 1940
Norfolk, Va.	13.75	13.75
Charleston, W. Va.	14.55	14.55
Louisville, Ky.	13.0	12.0
Memphis, Tenn.	14.8	13.8
Atlanta, Ga.	15.0	13.0
Charlotte, N. C.	14.9	13.5
Charleston, S. C.	13.75	13.75
Jackson, Miss.	13.5	11.5
Birmingham, Ala.	14.5	13.5
New Orleans, La.	13.25	11.75
Jacksonville, Fla.	12.0	10.5
Average	13.9	12.9

Midwestern

Helena, Mont.	18.5	14.0
Boise, Idaho	19.1	18.1
Casper, Wyo.	16.5	15.5
Reno, Nev.	16.5	15.0
Salt Lake City, Utah	14.5	14.5
Denver, Colo.	16.0	13.5
Phoenix, Ariz.	15.0	15.0
Albuquerque, N. M.	14.5	12.0
Average	16.3	14.7

Western Coast

San Francisco, Calif.	14.5	13.0
Portland, Ore.	15.0	13.5
Seattle, Wash.	15.0	13.5
Average	14.8	13.3

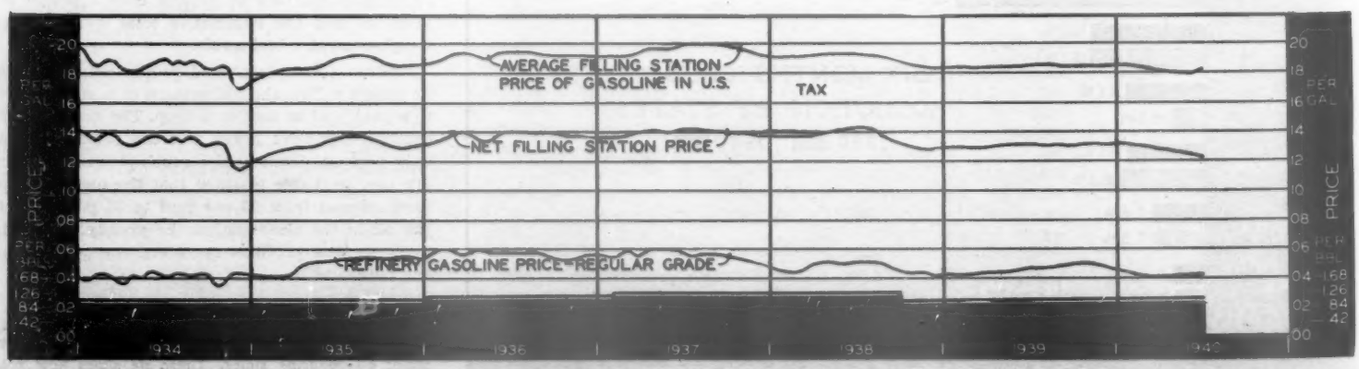
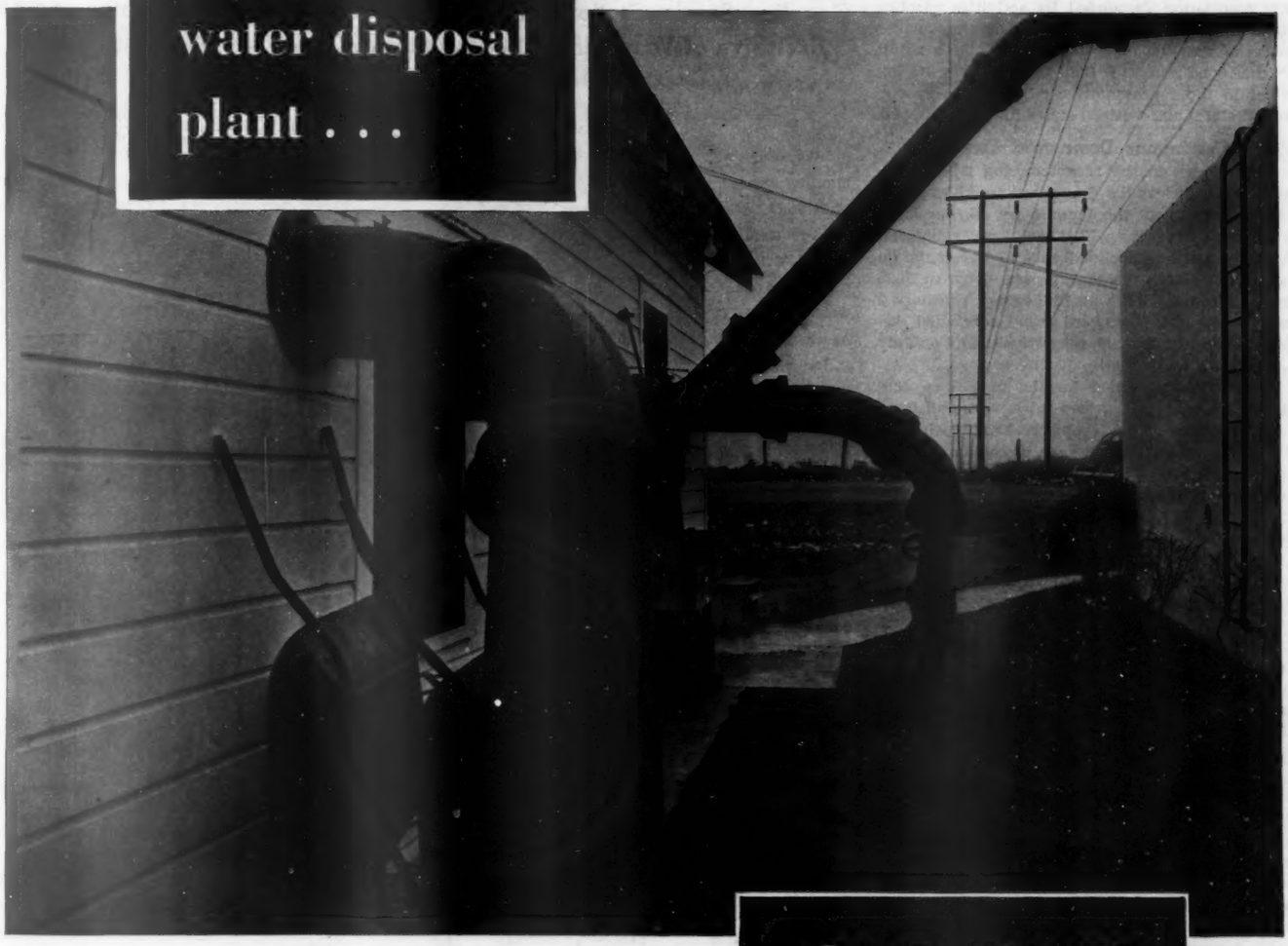


Chart showing trend of the net filling-station price of regular-grade gasoline and the gross retail price, and their relationship to the prices of refinery gasoline and crude oil

Installation of cast iron pipe for a joint salt water disposal plant . . .



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terized it for the past few years. Early in the year refined-oil prices were reduced and then later crude-oil prices were cut. The service-station prices, however, remained unchanged until the latter part of May when prices were generally cut 1.5 cents per gallon for regular-grade gasoline. Among practices objected to, and which led to the return of the indictment, was the purchase of surplus gasoline of small independent refiners by the Independent Refiners Association, which in turn sold it to any large buyer that wanted it. After that association suspended its activities gasoline quotations soon started sagging as the surplus stocks of gasoline made their effect. As a result of the conditions in California, service-station prices in the representative cities of the nearby coastal states and western states likewise dropped.

Continuous Downward Trend

As is shown in the accompanying table of retail gasoline prices the downward trend was continuous throughout the 6-month period. On January 1 the average was 13.44 cents per gallon, on February 1 it had declined only to 13.4 cents, on the first of March the average was down to 13.25 cents and on April 1 was 13.1 cents. The next 2 months saw the downward trend continued, being 12.95 and 12.72 cents, respectively, and on July 1 the figure was down to 12.68 cents.

Wichita, Kans., which for the past few years has been a center of savage price wars and for a time the holder of the low-price championship, so far this year has seen only one price change—and that an increase of ½ cent. This placed the service-station price on July 1 at 15.6 cents, so that Providence, R. I., was able to maintain its second "leg" on the low-price honor. In that city on July 1 gasoline at the pump was moving at 13.4 cents per gallon including taxes of 4.5 cents, as did the price for Wichita. Two newcomers to the low-price group were Hartford, Conn., with a July 1 station price of 14.0 cents or a reduction of 2.5 cents since the first of the year, and Boston, Mass. In the latter city motorists at the first of July were paying 14.3 cents for their motor fuel, including 4.5 cents of taxes, or 1.7 cents less per gallon than they were paying during the first 2 months.

Boise, Idaho, was an easy winner of the high-price honor with its gasoline price of 18.1 cents plus 6.5 cents in taxes, or a station price of 24.6 on July 1. Price reductions in the other cities of the midwestern district served to remove practically all competition in that territory, the largest cut (4.5 cents) being at Helena, Mont. In New Orleans, La., and Memphis, Tenn., where considerably higher taxes are in force, the pump prices of 22.3 and 22.25 cents placed them in second and third places, respectively.

City in which most price changes took place was Burlington, Vt., where prices changed at least once a month with the exception of February. Starting the year at a net station price of 13.5 cents the price varied up and down during the first 4 months, but the downward trend then set in and at the last of June was continuing.

Other cities witnessing several changes in price during the 6 months were Atlanta, Ga.; Portland, Me.; Boston, Mass.; Omaha, Neb.; and Providence, R. I. In all these cities the July 1 price was lower than that of January 1 except in Omaha where the July 1 figure was 1.4 cents higher than on January 1. Out of the 50 cities on the list 17 went through the 6-month period with no change in price.

There were no changes in state taxes during the period, but the ½-cent increase in federal tax on July 1 served to increase the average tax paid by motorists from 5.44 to 5.94 cents per gallon. New Orleans with its tax of 10.5 cents continued to lead all cities on the list in the amount of tax paid on gasoline, while Washington, D. C, held its low-place listing with a tax of 3.5 cents.

In this regard public sentiment against the diversion of automotive-tax funds for nonhighway purposes is crystallizing throughout the United States. In North Dakota in June by a 2-to-1 popular vote a constitutional amendment was adopted to safeguard the integrity of the automotive-tax funds. The measure, initiated by petition, will prevent future appropriation by the legislature of automotive funds for nonhighway-tax purposes.

By so doing, the state became the eighth to adopt such a measure. Other states which have adopted constitutional amendments against road-fund diversions are California, Colorado, Kansas, Michigan, Minnesota, Missouri and New Hampshire. In coming November elections voters in Idaho, Nevada and South Dakota will ballot upon the adoption of similar amendments. Also in Iowa and Wisconsin the legislatures have passed resolutions proposing to submit road-fund amendments to the voters.

Gasoline Service-Station Prices in Effect During First 6 Months of 1940, Exclusive of Taxes, in 50 Representative Cities, With Dates of Changes

Gasoline Taxes in Effect January 1, 1940, and July 1, 1940

	Price Jan. 1, 1940	Jan.	Feb.	Mar.	April	May		June	Price July 1, 1940	Tax Jan. 1, 1940	Tax July 1, 1940
Birmingham, Ala.	14.5	....	....	....	4/17 13.5	....	....	....	13.5	8.0	8.5
Phoenix, Ariz.	15.0	....	....	....	....	....	....	....	15.0	6.0	6.5
Little Rock, Ark.	13.75	....	2/21 13.25	....	....	....	....	....	13.25	7.5	8.0
San Francisco, Calif.	14.5	....	....	....	....	5/28 13.0	....	....	13.0	4.0	4.5
Denver, Colo.	16.0	....	2/5 14.5	3/8 13.5	....	....	....	6/25 15.5	15.5	5.0	5.5
Hartford, Conn.	12.0	....	....	....	....	5/2 11.5	5/23 10.2	6/24 9.5	9.5	4.0	4.5
Washington, D. C.	12.5	....	....	....	....	....	....	....	12.5	3.0	3.5
Dover, Del.	12.0	....	....	....	4/2 12.5	....	....	....	12.5	5.0	5.5
Jacksonville, Fla.	12.0	....	....	....	....	5/4 11.0	5/29 10.5	....	10.5	8.0	8.5
Atlanta, Ga.	15.0	1/18 14.0	2/27 15.0	....	4/20 14.5	5/3 13.0	....	....	13.0	7.0	7.5
Boise, Idaho	19.1	....	....	....	....	....	....	6/7 18.1	18.1	6.0	6.5
Chicago, Ill.	12.6	....	....	....	....	....	....	....	12.6	4.0	4.5
Peoria, Ill.	12.2	....	....	....	....	....	....	....	12.2	4.0	4.5
Indianapolis, Ind.	12.8	....	....	....	....	....	....	....	12.8	5.0	5.5
Des Moines, Iowa	11.9	....	....	....	....	....	....	....	11.9	4.0	4.5
Wichita, Kans.	10.6	....	....	....	....	5/1 11.1	....	....	11.1	4.0	4.5
Louisville, Ky.	13.0	....	....	....	4/19 12.0	....	....	....	12.0	6.0	6.5
New Orleans, La.	13.25	....	2/19 12.75	....	4/19 11.75	....	....	....	11.75	10.0	10.5
Portland, Me.	12.5	....	....	3/4 12.2	....	5/2 11.7	5/29 12.2	6/20 12.0	12.0	5.0	5.5
Baltimore, Md.	12.25	....	....	....	....	....	....	....	12.25	5.0	5.5
Boston, Mass.	11.5	....	....	3/14 11.0	4/5 10.5	5/2 10.0	....	6/20 9.8	9.8	4.0	4.5
Detroit, Mich.	11.6	....	....	....	....	....	....	....	11.6	4.0	4.5
Duluth, Minn.	13.9	....	....	....	....	....	....	....	13.9	5.0	5.5
Minneapolis, Minn.	13.0	1/5 12.5	....	....	....	....	....	6/15 12.0	12.0	5.0	5.5
Jackson, Miss.	13.5	1/17 13.0	....	3/27 11.5	....	....	....	....	11.5	7.0	7.5
Kansas City, Mo.	12.4	....	....	....	....	....	....	....	12.4	4.0	4.5
Helena, Mont.	18.5	....	2/23 16.5	....	4/24 14.0	....	....	....	14.0	6.0	6.5
Omaha, Neb.	10.5	....	2/3 9.9	3/4 10.5	4/20 9.5	5/1 10.9	5/28 11.9	....	11.9	6.0	6.5
Reno, Nev.	16.5	....	....	....	....	5/28 15.0	....	....	15.0	5.0	5.5
Newark, N. J.	12.9	....	....	....	....	....	....	....	12.9	4.0	4.5
Albuquerque, N. M.	14.5	....	2/7 12.0	3/4 11.0	....	....	....	6/4 12.0	12.0	6.5	7.0
New York, N. Y.	12.5	....	....	3/7 12.1	....	5/2 11.6	....	....	11.6	5.0	5.5
Charlotte, N. C.	14.9	....	....	....	4/27 13.0	5/12 14.9	....	§6/29 13.5	13.5	7.0	7.5
Fargo, N. D.	14.7	....	....	....	....	....	....	....	14.7	5.0	5.5
Cleveland, Ohio	11.5	1/27 11.0	....	....	....	....	....	....	11.0	5.0	5.5
Tulsa, Okla.	10.0	....	....	....	....	....	....	6/29 11.0	11.0	5.0	5.5
Portland, Ore.	15.0	....	....	....	....	5/28 13.5	....	....	13.5	6.0	6.5
Philadelphia, Pa.	12.0	....	....	*3/5 11.5	....	....	....	....	11.5	5.0	5.5
Providence, R. I.	10.0	....	....	3/14 9.7	....	5/2 9.2	5/22 8.95	6/20 8.9	8.9	4.0	4.5
Charleston, S. C.	13.75	....	....	....	....	....	....	....	13.75	7.0	7.5
Huron, S. D.	14.0	....	....	....	....	....	....	....	14.0	5.0	5.5
Memphis, Tenn.	14.8	....	....	3/25 13.8	....	....	....	....	13.8	8.0	8.5
Dallas, Tex.	11.0	....	....	....	....	5/1 10.0	....	....	10.0	5.0	5.5
Salt Lake City, Utah	14.5	....	....	....	....	....	....	....	14.5	5.0	5.5
Burlington, Vt.	13.5	1/31 13.9	....	†3/26 12.1	4/8 13.6	5/2 13.1	‡5/3 12.6	6/20 11.95	11.95	5.0	5.5
Norfolk, Va.	13.75	....	....	....	....	....	....	....	13.75	6.0	6.5
Seattle, Wash.	15.0	....	....	....	....	5/28 13.5	....	....	13.5	6.0	6.5
Charleston, W. Va.	14.55	....	....	....	....	....	....	....	14.55	6.0	6.5
Milwaukee, Wis.	13.3	....	....	....	....	....	....	....	13.3	5.0	5.5
Casper, Wyo.	16.5	....	2/1 15.5	3/18 15.0	....	....	....	....	15.0	5.0	5.5
Average price	13.44	....	....	....	....	....	....	....	12.72	5.44	5.94

*Price reduced to 10.8 cents on March 14 and restored to 11.5 cents on March 25. †Reduced to 13.5 cents on March 14 and then to 12.1 cents on March 26. ‡Reduced to 12.35 cents on May 22. §Reduced to 14 cents on June 24 and to 13.5 cents on June 29.

Strong First Half Fuel-Oil Market Was Partial Balance for Soft Gasoline

By H. STANLEY NORMAN

FUEL oils, lubricants and wax were the exceptions to an otherwise unsatisfactory market for refined petroleum products in the first half of this year. Domestic weather conditions and the European war created abnormal demand for the products in exception and likewise were responsible for the depressed prices blanketing volatile motor fuels which make up 43 to 44.5 per cent of the yield from United States refineries.

Market conditions were even less encouraging at the end of the half year than reflected by averages for the period. Slack demand for fuel oils in keeping with the summer season along with lower coastwise tanker rates caused prices for light burning products to lose ground in May and June. Export demand for lubricating oils dropped sharply in May and June causing a sharp recession of f.o.b. refinery quotations.

Weather Conditions a Factor

The prolonged winter and severe spring weather conditions in areas of concentrated population caught the petroleum markets in a crosscurrent of influences. Demand for light fuel oils in the operation of domestic burners held at almost mid-winter levels in the northeastern section of the country through the middle of April. In supplying the fuel-oil requirements of the Northeast and Middle West, refiners ran more crude oil than justified by the consumption and inventory of motor fuel. Limitations on the operating adjustments available to refiners were insufficient to avoid accumulation of record-breaking gasoline stocks resulting from producing enough fuel oil to meet demand.

The all-time peak of gasoline stocks and a drop of more than 41 per cent in exports formed a combination of market-depressing conditions from which the industry has not yet recovered, despite record-breaking domestic demand. Average prices for export gasoline on the Gulf Coast the first half of the year were slightly higher than for the corresponding period in 1939. However, the price at the end of the 6 months was lower by 0.25 of a cent than in the preceding half year. Quotations were held at fairly high levels for the first few months in anticipation of a pickup in demand from the Allies but the record now shows that any such hopes were built on a false premise.

Deep incisions are being made currently in motor-fuel stocks but the corrective measures were taken too late to aid the ailing market in the first half year.

Pacific Coast Conditions

Some of the market ailments prevailing the first 6 months east of the Rocky Mountains were not common to the Pacific Coast, or at least the lag in exports did not catch up with California refiners as early as elsewhere. In fact, California export gasoline quotations were approximately 0.9 cent higher for the past half year than for the comparable period in 1939. Gulf Coast refiners were offering export motor fuel at 4 cents by the end of June by the half-year averages were slightly higher in 1940 than in 1939 because of the tendency to hold up quotations on war demand expectations.

Gains of the fuel oil and lubricating markets the first half year were concentrated on the Gulf and East coasts. Doubtless part of the 1940 price gains in these products were caused by abnormally high tanker rates which boat owners were able to command for coastwise trade. The slow movement of marine-oil transports under war conditions had the net result of reducing the tanker capacity by at least 25 per cent.

Residual fuel oil averaged 51 cents per barrel higher at New York the first half. Diesel oil, 28-30 grade, was 40 cents per barrel higher in the New York market the first 6 months than in the corresponding period in 1939. Diesel fuel, typical of the light burning products, dropped to approximately 1939 levels at the end of June but the winter market prevailed for the first 4 months causing the average to be higher. Here again, tanker rates played an important part in the mid-year market developments. Boats were fixed for coastwise movement of light fuel oils as high as 62 cents per barrel during the peak consuming season of February and March. Rates started slipping early in June and declined to a range of 28 to 30 cents per barrel by the end of the first half.

Residual fuels failed to follow seasonal trends to the extent displayed by light burning oils. Quotations for Bunker C fuel oil at New York dropped 15 cents from its high of $1.50 but the market held fairly strong at $1.35 through the end of the first half. Residual fuel was likewise on firm marketing ground on the Gulf Coast. Refiners anticipate that residual fuels will be among the first petroleum products to benefit from the national-defense program and, consequently, were unwilling to push material on the market if a price concession was a prerequisite.

Interior Fuel Less Affected

Fuel oil at the interior refining districts is less intimately related to tanker rates and other outside influences accounting for the more modest gains in average prices received in the first half by Group 3 producers. Little of the Group 3 produced fuel oil moves east of the Mississippi where the largest centers of consumption are located. The territory served by Group 3 plants has a greater selection of fuels for heating. The competition with natural gas and coal is more pronounced in the Middle West which exerts an influence on the fuel-oil market fluctuations.

The pressure of export stoppage on the Pennsylvania lubricating-oil market began clouding the producing and refining picture in that area in April and May. Almost complete demoralization of the market built up to record highs in Jan-

AVERAGE YEARLY PRICES ON MOST IMPORTANT REFINERY PRODUCTS, 1931 TO JULY 1, 1940

(Price in tank car at plant)

OKLAHOMA

	First 6 mos. of 1940	1939	1938	1937	1936	1935	1934	1933	1932	1931
U. S. Motor gasoline (regular grade), per gallon	$.0451	$.0487	$.0503	$.0582	$.0588	$.0492	$.0444	$.0363	$.0392	$.0345
Natural gasoline, 26-70 (AA grade), per gallon	.0178	.0317	.0271	.0367	.0361	.0320	.0260	.0290	.0222	.0301
41-43 water-white kerosene, per gallon	.0384	.0367	.0407	.0413	.0365	.0353	.0322	.0279	.0315	.0231
Fuel oil, 8 to 14 gravity, per barrel	.4750	.4597	.5509	.7780	.6619	.6232	.5930	.3899	.3250	.2904
U.G.I. gas oil, per gallon	.0263	.0267	.0208	.0289	.0251	.0233	.0201	.0146	.0146	.0127
200 vis. neutral, 3 color (10-25 pour point), per gallon	.1260	.11	.1000	.0996	.1043	.1075	.0994	.0845	.0834	.0924
150-160 D color bright stock, per gallon	.2192	.1674	.1491	.1859	.1769	.1496	.2030	.1852	.1837	.1631
124-126 wax, per pound	.0537	.0350	.0230	.0286	.0245	.0224	.0346	.0253	.0170	.0174
Crude (36 A.P.I. gravity), per barrel	1.02	1.02	1.19	1.21	1.10	1.00	1.00	.62	.88	.63

CALIFORNIA

	First 6 mos. of 1940	1939	1938	1937	1936	1935	1934	1933	1932	1931
U. S. Motor gasoline (low octane), per gallon	$.0694	$.0621	$.0677	$.0737	$.0602	$.0552	$.0624	$.0523	$.0546	$.0510
Natural gasoline, 75-85, 375 end point, per gallon	.0567	.0598	.0639	.0676	.0617	.0506	.0575	.0462	.0447	.0418
38-43 kerosene, per gallon	.0450	.0473	.0510	.0432	.0339	.0409	.0458	.0384	.0398	.0425
24 plus diesel*	1.15	.9466	1.19	1.175	1.035	1.084	1.032	.8406	.7432	.7510
Crude (25 A.P.I. gravity, Signal Hill), per barrel	.9650	1.03	1.03	1.03	.997	.85	.94	.84	.83	.76

PENNSYLVANIA

	First 6 mos. of 1940	1939	1938	1937	1936	1935	1934	1933	1932	1931
74-76 (regular) gasoline, per gallon†	$.0616	$.0453	$.0487	$.0544	$.0565	$.0521	$.0519	$.0505	$.0568	$.049
45 water-white kerosene, per gallon	.0489	.0485	.0501	.0507	.0504	.0467	.0448	.0446	.0451	.04
Bright stock, 10 pour point, per gallon	.2620	.2079	.1671	.2422	.2361	.1990	.2540	.2407	.2466	.2094
Crude in National Transit Lines (Bradford field), per barrel	2.68	2.06	1.89	2.64	1.42	2.17	2.47	1.86	1.88	1.81

*1931, 1932, 1933, 1934 and 1935 are on 27 plus diesel. †Previous to 1940, below 60 octane.

uary had set in at the start of June. Average prices received for Pennsylvania lubricants were about 10 cents per gallon higher the first half of this year than in 1939. The averages, however, represented a decline of nearly 10 cents from the peak of the Pennsylvania market. The price of Bradford grade crude oil averaged 62 cents per barrel higher in the first half than last year.

Cessation of lubricating-oil exports hit harder at Pennsylvania refiners than those of other districts. More than 30 per cent of the Pennsylvania lubricating business is in export trade. Markets in Norway, Sweden, Germany, all Mediterranean countries and western Europe were cut off in May and June creating a serious bottleneck for the Pennsylvania group of refiners. Competition with gasoline from less expensive Illinois crude precluded the possibility of making up profits lost in lubricating-oil exports from the light products.

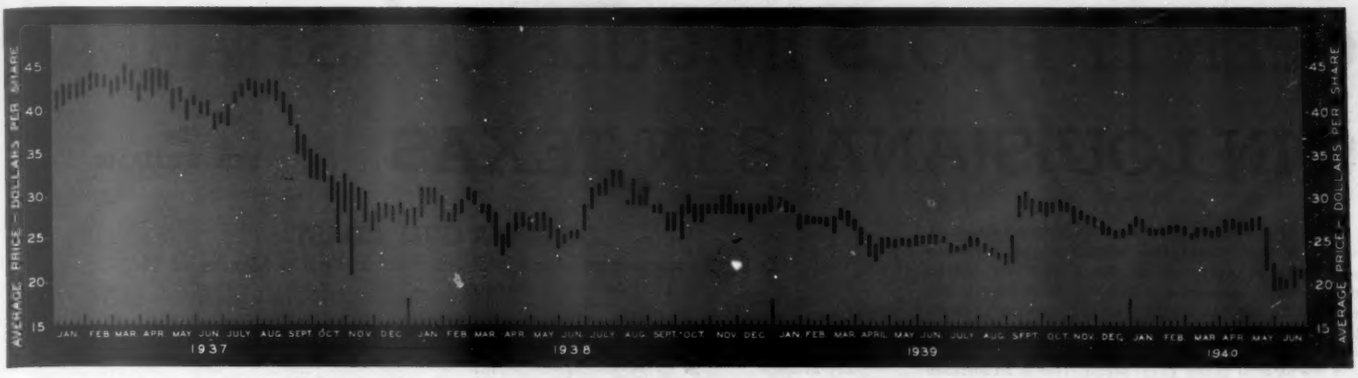
Despite a demoralization of domestic motor-fuel markets in California late in May when gasoline prices dropped 1.5 to 2.5 cents per gallon, Pacific Coast refiners in general fared as well the first half as those in other parts of the country. Export movement from California was only slightly restricted by the European war. Movement to Japan was down some but domestic and export gasoline prices at refineries and terminals averaged slightly higher than in 1939. Natural gasoline and light fuel oils averaged lower on the Pacific Coast. Lubricants were unchanged in average prices.

AVERAGE DOMESTIC AND EXPORT REFINERY PRICES DURING PAST 30 MONTHS

(QUOTATIONS F.O.B. PLANTS AND TERMINALS)

	1st 6 mos. 1940			1939					1938				
	Average price	High	Low	Av. pr. for yr.	High	Low	1st 6 mos.	2nd 6 mos.	Av. pr. for yr.	High	Low	1st 6 mos.	2nd 6 mos.
GASOLINES—													
Oklahoma (Group 3):													
U. S. Motor grades:													
Regular, 72-74 octane	$.0451	$.0475	$.0425	$.0487	$.0525	$.0438	$.0464	$.0510	$.0503	$.0550	$.0437	$.0510	$.0496
Third grade, below 62 octane	.0387	.0388	.0325	.0405	.0450	.0325	.0377	.0433	.0415	.0475	.0437	.0417	.0414
Pennsylvania:													
74-76 (regular)*	.0616	.0663	.0625	.0453	.05	.0425	.0438	.0468	.0487	.0525	.0425	.0488	.0486
California:													
58-60 400; 65 octane and higher†	.0694	.07	.0625	.0621	.0650	.06	.0619	.0623	.0677	.0750	.0650	.0690	.0664
New York (Bayonne, N. J.):													
65 octane and above	.0620	.0650	.0575	.0618	.0650	.06	.0608	.0627	.0666	.0712	.0650	.0673	.0658
Gulf Coast (domestic):													
Regular, 72-74 octane‡	.0492	.06	.0425	.0526	.0650	.0512	.0472	.0579	.0523	.0550	.0462	.0549	.0498
NATURAL GASOLINES—													
Oklahoma (Group 3):													
Grade 26-70	.0178	.0250	.0150	.0317	.0425	.0250	.0265	.0368	.0271	.0375	.02	.0236	.0305
Grade 18-55	.0210	.03	.0175	.0376	.0512	.0275	.0315	.0436	.0317	.0437	.0237	.0280	.0353
California:													
75-85 375-390	.0567	.0575	.0525	.0598	.0650	.0550	.0630	.0566	.0639	.0675	.0625	.0650	.0627
KEROSENE—													
Oklahoma (Group 3):													
41-43 water white	.0384	.04	.0363	.0367	.0388	.0337	.0378	.0356	.0407	.0425	.0387	.0415	.0398
North Texas:													
41-43 water white	.0380	.04	.0363	.0377	.0475	.0337	.0397	.0356	.0407	.0425	.0387	.0415	.0399
Pennsylvania:													
45 water white	.0489	.05	.0450	.0485	.05	.0450	.0489	.0481	.0501	.0550	.0462	.0517	.0485
California:													
38-43 high burning test	.0450	.0450	.0450	.0473	.0475	.0450	.0475	.0471	.0510	.06	.0475	.0530	.0490
New York (Bayonne, N. J.):													
41-43 water white	.0568	.0590	.0520	.0460	.0520	.0437	.0450	.0469	.0515	.0630	.0462	.0567	.0462
Gulf Coast:													
41-43 water white	.0450	.0450	.0425	.0391	.0450	.0350	.0370	.0411	.0428	.05	.0387	.0461	.0395
FURNACE OILS AND TRACTOR FUELS—													
Oklahoma (Group 3):													
38-42, No. 1 prime white	.0363	.0375	.0338	.0336	.0363	.0312	.0340	.0331	.0381	.0412	.0362	.0390	.0373
38-40, No. 1 straw	.0352	.0363	.0338	.0322	.0350	.03	.0327	.0317	.0368	.04	.0350	.0377	.0359
32-36, No. 2 straw	.0339	.0350	.0325	.0303	.0338	.0275	.0304	.0302	.0350	.0387	.0300	.0351	.0349
New York (Bayonne, N. J.):													
No. 1	.0564	.0590	.05	.0441	.05	.04	.0435	.0446	.0514	.0630	.0450	.0578	.0450
No. 4	.0508	.0540	.0425	.0397	.0425	.0375	.0397	.0396	.0439	.0525	.04	.0478	.04
GAS OIL, DIESEL OIL, AND FUEL OIL—													
Oklahoma (Group 3):													
U.G.I. gas oil, under 35	.0263	.0263	.0263	.0267	.0288	.0250	.0271	.0262	.0280	.0287	.0262	.0275	.0285
No. 6 fuel oil, industrial, 8-14	.4750	.50	.45	.4597	.5250	.40	.4654	.4540	.5509	.70	.50	.5961	.5058
California:													
24 plus diesel, per barrel	1.15	1.15	1.10	.9466	1.15	.80	.97	.9231	1.19	1.50	1.00	1.32	1.05
New York (Bayonne, N. J.):													
28-30 diesel (lighterage 6¼ cents per barrel)	2.07	2.20	1.70	1.695	2.10	1.65	1.67	1.72	1.84	2.20	1.75	1.93	1.75
Bunker C (New York Harbor)	1.47	1.50	1.35	1.04	1.50	.95	.96	1.12	1.05	1.25	.95	1.14	.95
NEUTRAL OILS—													
Oklahoma (Group 3):													
200, 3 color, 10-25 pour point	.1260	.14	.0950	.11	.14	.10	.10	.12	.10	.10	.10	.10	.10
Pennsylvania:													
200, 3 color, 10 pour point	.2825	.34	.24	.2208	.34	.17	.1810	.2606	.1714	.20	.1350	.1784	.1644
Gulf Coast:													
200, 3 pale oil	.0725	.0725	.0725	.0699	.0725	.0650	.07	.0697	.0700	.07	.07	.0700	.0700
200, 5-6 red oil	.07	.07	.07	.0711	.0725	.0625	.0725	.0697	.0719	.0725	.0725	.0725	.0712
California:													
200, 2½-3 pale oil	.0725	.0725	.0725	.0725	.0725	.0725	.0725	.0725	.0719	.0750	.0725	.0725	.0712
BRIGHT AND STEAM-REFINED STOCKS—													
Oklahoma (Group 3):													
150-160, zero to 10, D color	.2192	.25	.16	.1674	.25	.1425	.1425	.1922	.1491	.16	.1425	.1554	.1428
Pennsylvania:													
600 S.R.	.1386	.18	.1150	.0996	.1750	.08	.0831	.1161	.0815	.0850	.07	.0827	.0803
Bright stock, 10 pour point	.2620	.35	.2050	.2079	.35	.15	.1733	.2425	.1671	.1850	.15	.1721	.1621
WAX—													
Oklahoma (Group 3):													
124-126 (crude scale)	.0537	.0675	.0438	.0350	.0675	.0235	.0256	.0444	.0230	.03	.0212	.0234	.0226
New York (Bayonne, N. J.):													
125-127 (A.m.p.)	.0617	.0675	.0575	.0419	.0650	.0360	.0367	.0470	.0431	.0455	.0435	.0441	.0421
EXPORT PRICES—													
Gasoline—Gulf Coast:													
60-62 400	.0479	.0513	.04	.0449	.05	.0425	.0428	.0469	.0481	.0537	.0437	.0482	.0470
64-66 375	.0502	.0575	.04	.0530	.07	.04	.0437	.0622	.0510	.0575	.0450	.0522	.0498
Los Angeles, Calif.:													
U. S. Motor, 60-65 octane	.0545	.0550	.0525	.0468	.0550	.0425	.0458	.0477	.0521	.0575	.0500	.0539	.0502
U. S. Motor, 65-69 octane	.0575	.0575	.0575	.0495	.0575	.0450	.0483	.0507	.0559	.0625	.0525	.0589	.0529
Lubricants—New York (f.a.s. in barrels):													
600 S.R. unfiltered	.2060	.25	.1850	.1842	.28	.16	.16	.2084	.1607	.1650	.1550	.1613	.16
Bright stock:													
Light, 25 pour point	.3340	.40	.20	.2324	.40	.1625	.1625	.3022	.1914	.2350	.1625	.2203	.1625

*Below 60 octane, 1939 and 1938. †54-58 octane, 1939 and 1938. ‡68-70 octane, 1939 and 1938.


AVERAGE PRICE — DOLLARS PER SHARE
45
40
35
30
25
20
15
JAN. FEB MAR APR MAY JUN JULY AUG SEPT OCT NOV DEC JAN. FEB MAR APR MAY JUN JULY AUG SEPT OCT NOV DEC JAN. FEB MAR APRIL MAY JUN JULY AUG SEPT OCT NOV DEC JAN. FEB MAR APR MAY JUN
1937
1938
1939
1940

Average of high and low quotations on 30 representative common oil stocks listed on New York markets. Uppermost point on each vertical line represents average of highs while the base represents average of lows. Data reflect market at close of each week

TRENDS

in the market value of oil

STOCKS

(Averages Compiled by Carl H. Pforzheimer & Co.)
Member New York Stock Exchange and New York Curb Exchange

1938	HIGH	LOW	CLOSE
January 8	30.15	27.38	29.89
January 15	31.03	29.31	30.30
January 22	30.52	29.10	29.45
January 29	29.62	27.02	27.25
February 5	28.31	26.76	27.75
February 12	28.74	27.21	28.42
February 19	29.50	27.99	29.42
February 26	31.01	29.47	30.28
March 5	30.41	28.98	29.26
March 12	29.28	27.62	27.99
March 19	28.9	26.6	27.3
March 26	27.79	24.18	24.41
April 2	25.14	22.69	24.64
April 9	26.99	24.36	26.84
April 16	28.07	25.80	27.98
April 23	28.33	26.47	27.75
April 30	27.48	25.91	26.19
May 7	27.74	25.83	27.57
May 14	27.89	26.23	26.55
May 21	26.55	25.25	25.32
May 28	25.71	24.14	24.55
June 4	25.52	24.51	25.38
June 11	26.39	25.12	25.87
June 18	26.04	25.05	25.62
June 25	29.21	25.95	28.97
July 2	31.12	28.53	30.90
July 9	31.49	29.90	30.73
July 16	32.17	29.99	31.39
July 23	32.60	31.05	32.15
July 30	32.64	30.76	31.32
August 6	29.50	28.76	29.18
August 13	31.64	29.32	29.58
August 20	30.46	29.42	40.04
August 27	30.61	29.03	29.23
September 3	29.35	28.01	28.95
September 10	29.19	27.86	28.03
September 17	28.34	25.89	26.46
September 24	28.27	26.09	26.73
October 1	29.09	25.31	28.92
October 8	29.93	27.94	28.45
October 15	28.70	27.08	27.93
October 22	29.14	27.29	28.78
October 29	29.40	28.10	28.36
November 5	28.98	27.93	28.55
November 12	29.87	28.40	29.53
November 19	29.58	28.14	28.50
November 26	29.02	28.07	28.41
December 3	28.79	27.63	28.14
December 10	28.59	27.42	28.73
December 17	29.21	27.57	28.63
December 24	28.93	27.81	28.50
December 31	29.66	27.91	29.52

1939	HIGH	LOW	CLOSE
January 7	29.89	28.88	29.09
January 14	29.19	28.17	28.59
January 21	29.04	28.18	28.37
January 28	28.12	26.34	26.87
February 4	27.98	27.06	27.68
February 11	27.78	27.09	27.34
February 18	27.73	27.03	27.42
February 25	27.75	26.85	27.37
March 4	27.93	26.95	27.90
March 11	28.70	27.44	28.40
March 18	28.53	26.72	26.86
March 25	27.31	26.15	26.64
April 1	26.77	24.52	25.07
April 8	25.72	23.09	23.15
April 15	24.89	22.64	24.57
April 22	25.17	23.46	24.89
April 29	25.24	24.21	24.50
May 6	25.09	24.12	24.79
May 13	25.28	24.50	24.89
May 20	25.10	24.18	24.66
May 27	25.69	24.43	25.40
June 3	25.68	24.77	25.16
June 10	25.89	24.84	25.71
June 17	25.72	24.62	25.53
June 24	25.43	24.76	24.92
July 1	24.92	23.53	23.88
July 8	24.38	23.73	24.00
July 15	24.63	23.92	24.88
July 22	25.46	24.33	25.00
July 29	25.26	24.32	24.64
August 5	24.87	23.88	24.05
August 12	24.13	23.13	23.33
August 19	23.86	22.96	23.20
August 26	23.49	22.09	23.18
September 2	25.58	22.29	24.99
September 9	30.22	27.84	29.41
September 16	30.86	28.64	29.20
September 23	29.97	27.92	29.42
September 30	29.78	28.23	29.11
October 7	29.51	27.95	28.68
October 14	29.34	28.30	28.89
October 21	29.78	28.57	29.14
October 28	29.44	28.37	28.81
November 4	29.05	27.07	28.80
November 10	28.58	27.37	27.57
November 18	28.09	26.93	27.51
November 25	27.85	26.63	26.87
December 2	27.14	25.94	26.22
December 9	26.62	25.78	26.03
December 16	26.28	25.19	25.78
December 23	26.40	25.34	26.03
December 30	26.77	25.59	26.43

1940	HIGH	LOW	CLOSE
January 6	27.69	26.53	27.18
January 13	27.35	25.91	26.03
January 20	26.32	25.48	25.96
January 27	26.37	25.64	26.01
February 3	26.23	25.55	25.87
February 10	26.54	25.70	26.27
February 17	26.59	25.96	26.25
February 24	26.56	25.62	25.74
March 2	25.89	25.06	25.29
March 9	26.36	25.30	26.04
March 16	26.38	25.52	25.81
March 23	25.94	25.36	25.69
March 30	26.33	25.45	26.09
April 6	27.21	25.96	26.93
April 13	27.21	26.21	26.37
April 20	26.96	25.69	26.30
April 27	26.92	26.13	26.52
May 4	27.21	26.08	26.85
May 11	27.42	26.11	26.55
May 18	26.39	21.65	22.04
May 25	22.35	19.04	19.99
June 1	20.76	19.22	19.95
June 8	20.58	19.39	20.18
June 15	21.91	19.52	21.42
June 22	21.77	20.54	21.07
June 29	21.54	20.28	20.84

Thirty companies whose common stocks make up the average values shown above: Amerada, Atlantic, Barnsdall, Consolidated, Continental, Creole, Gulf, Humble, Imperial, International, Mid-Continent, Ohio, Phillips, Plymouth, Pure Oil, Seaboard Oil, Shell Union, Skelly, Socony, South Penn, Standard of California, Standard of Indiana, Standard of Kentucky, Standard of New Jersey, Standard of Ohio, Sun, Texas Co., Texas Pacific Coal & Oil, Tide Water Associated, and Union Oil Co.

OPEN 17 POOLS IN GULF COAST AREA; 9 IN LOUISIANA, 8 IN TEXAS

By
NEIL WILLIAMS

With 17 new pools discovered, important extensions, and new sand discoveries established in numerous proven fields, operators in the Gulf Coast district marked up a successful 6 months' development, and entered the last half of the year in a position to establish a new high in total pools discovered. There were 17 pools opened, 9 of which were in coastal Louisiana, and the balance in the Texas sector. This is an increase of seven fields over the same period last year.

There were 1,150 wells completed in the district. Of this total 643 were completed in the Texas sector, a slight decline over the preceding 6 months, and 507 wells were completed in coastal Louisiana, a gain of 188 wells over the same period a year ago. The latter district witnessed its most active drilling campaign and development in this area overshadowed that of the Texas sector as multiple-sand conditions in several of the new pools, and the development of production around several nonproductive salt domes added several million barrels in new reserves.

New sands and productive areas opened at many of the old salt domes can probably be classified as the most outstanding development in the district. The success of this development has resulted in a consistent uncovering of new reserves, and this type of exploration is being extended to practically every salt-dome structure in the district. Salt structures receiving their first production or new sand discoveries included Bayou Des Glaize, Iberville Parish; Anse La Butte, St. Martin Parish; Bayou Blue, Iberville Parish; Jennings, Acadia Parish; Sulphur, Calcasieu Parish; Valentine, La Fourche Parish; Hackberry, Cameron Parish; Venice, Plaquemines Parish, and on the Texas coast, Fannett, Jefferson County, and Esperson in Liberty County.

Several operations are listed for other old domes, and at the end of June, preparations were being made to test an oil sand logged at Calcasieu Lake, Cameron Parish, in Superior Oil Co.'s No. 3 Calcasieu Lake. Numerous wells have been drilled around the flank of this structure, but no commercial production was ever developed.

Development of the Wilcox trend which had shown a large decrease in activity the latter part of 1939 as the result of numerous abandonments was in line for additional development as two new pools were added to the trend. These discoveries included the Neale field, Beauregard Parish, Louisiana, and the Sheridan field, Colorado County, Texas, the latter field extending such line of fields more than 100 miles westward. Both fields are in the early stages of development, and their potentiality cannot be accurately measured, although at the present time they do not appear to be as prolific as the Eola field, Avoyelles Parish, where a long flowing life is assured due to a large sand body.

The Neale field, opened by Atlantic Refining Co.'s No. 1 Whitmer, was completed in 14 ft. of Wilcox sand at 8,356-70 ft. The company extended production ½ mile southeast with the completion of No. 1 Spiers

LOUISIANA GULF COAST

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
ABBEVILLE:							
Daily average	355	495	456	472	522	825	
Month	11,005	14,285	14,127	14,158	16,182	24,750	94,507
ANSE LA BUTTE:							
Daily average	17	167	144	250	368	347	
Month	527	4,846	4,577	7,505	11,408	10,410	39,273
BANCROFT:							
Daily average	3,140	2,831	2,999	2,799	3,209	4,159	
Month	97,340	82,102	92,978	83,971	99,479	124,770	580,640
BARATARIA:							
Daily average	275	500	488	780	1,025	905	
Month	8,525	14,514	15,141	23,402	31,775	27,350	120,707
BATEMAN LAKE:							
Daily average	1,023	997	848	808	840	1,206	
Month	31,713	28,042	26,277	24,246	26,040	36,180	172,498
BAYOU BLUE:							
Daily average	98	102	113	144	135	176	
Month	3,038	2,951	3,501	4,312	4,185	5,280	23,267
BAYOU DES ALLEMANDS:							
Daily average	381	331	326	331	255	250	
Month	11,811	9,599	10,106	9,940	7,905	7,500	56,861
BAYOU MALLET:							
Daily average	232	240	225	227	209	199	
Month	7,192	6,956	6,976	6,815	6,479	5,970	40,388
BAYOU PIGEON:							
Daily average	.....	.....	26	249	259	248	
Month	.....	.....	796	7,470	8,029	7,440	23,735
BAY ST. ELAINE:							
Daily average	332	334	293	318	284	303	
Month	10,292	9,672	9,092	9,528	8,804	9,090	56,478
BLACK BAYOU:							
Daily average	2,813	3,005	2,809	2,750	2,726	2,747	
Month	87,203	87,146	87,069	82,501	84,506	82,410	510,835
BOSCO:							
Daily average	4,349	4,540	4,713	4,914	4,931	5,113	
Month	134,819	131,650	146,118	147,413	152,861	153,390	866,251
CAILLOU ISLAND:							
Daily average	6,710	7,000	7,658	8,225	8,146	7,987	
Month	208,010	203,003	237,401	246,739	252,526	239,610	1,387,289
CAMERON MEADOWS:							
Daily average	1,775	1,858	1,734	2,073	2,098	2,225	
Month	55,025	53,877	53,744	62,178	65,038	66,750	356,612
CHACAHOULA:							
Daily average	963	1,150	1,167	1,400	1,379	1,247	
Month	29,853	33,336	36,165	41,999	42,749	37,410	221,512
CHALKLEY:							
Daily average	1,937	1,771	2,069	2,520	2,617	2,729	
Month	60,047	51,363	64,129	75,590	81,127	81,870	414,126
CHARENTON:							
Daily average	10,095	10,129	8,482	8,487	8,909	8,212	
Month	312,945	293,740	262,937	254,601	276,179	246,360	1,646,762
CHENEYVILLE:							
Daily average	2,663	2,670	2,486	2,807	3,082	2,906	
Month	82,553	77,596	77,066	84,223	95,542	87,180	504,160
CHOCTAW:							
Daily average	846	1,037	798	1,013	1,175	1,397	
Month	26,226	30,066	24,742	30,403	36,425	41,910	189,772
CREOLE:							
Daily average	1,854	1,861	2,047	2,028	2,036	1,598	
Month	57,474	53,961	63,449	60,831	63,116	47,940	346,771
DARROW:							
Daily average	2,302	2,209	2,247	2,293	2,226	2,100	
Month	71,362	64,052	69,645	68,778	69,006	63,000	405,843
DeLARGE:							
Daily average	199	200	200	202	200	174	
Month	6,169	5,790	6,205	6,047	6,200	5,220	35,631
DOG LAKE:							
Daily average	813	900	900	761	690	713	
Month	25,203	26,099	27,900	22,824	21,390	21,390	144,806
EAST HACKBERRY:							
Daily average	4,774	4,564	4,665	4,550	4,832	4,990	
Month	147,994	132,351	144,613	136,511	149,792	149,700	860,961
EDGERLY:							
Daily average	256	231	230	226	232	296	
Month	7,936	6,688	7,123	6,792	7,192	8,880	44,611
EOLA:							
Daily average	8,480	9,633	11,013	13,150	12,907	10,227	
Month	272,880	279,349	341,406	394,508	400,117	306,810	1,995,070

(Continued on Page 93)

TEXAS GULF COAST DISCOVERIES FIRST HALF OF 1940

Pool—	County	Company and farm name	Survey	Date of comp.	Production formation	Production depth	Initial production	No. wells June 30
Alta Loma	Galveston	Stanolind O. & G. Co.'s No. 1 J. A. Hulen	A. Brigham	June	Frio	9,156-66	598 bbl. oil, plus 65% S.W., 2-in. flow lines	1
Blessing	Matagorda	Texas Co.'s No. 1 A. H. Pierce	H.&G.N. No. 1	June 27	Frio	8,265-8,300	36 bbl. dist., 21 hrs., ½-in. ck.	1
East Bernard	Wharton	Cockburn Oil Corp.'s No. 1 Leveridge	J. Scott	May 7	Cook Mtn.	8,074-89	40 bbl. dist. per day, ⅛-in. ck.	1
Liverpool	Brazoria	Rowan & Nichols' No. 1 Hubbard	W. H. Harris	June 29	Frio	8,538-54	187 bbl. per day, ⅛-in. ck.	1
Mackey	Wharton	J. F. Hutchins' No. 2 Borden	E. M. Cox	January 28	Heteros.	4,758-71	4 bbl. per day, ¼-in. ck.	1
Lolita	Jackson	Wellington Oil Co.'s No. 1 L. Ranch Co.	I.&G.N. No. 11	May 25	Frio	5,933-37	335 bbl. per day, ⅛-in. ck.	3
Ogburn	Harris	Joyce Richardson's No. 1 E. Marks	J. C. Ogburn	June 20	Yegua	6,918-26	4½ bbl. dist. per hour, ⅛-in. ck.	1
Sheridan	Colorado	Shell Oil Co., Inc.'s No. 1 Plow Realty Co.	O. K. Winn	May 28	Wilcox	8,135-43	237 bbl. per day, ½-in. ck.	1

COASTAL LOUISIANA DISCOVERIES FIRST HALF OF 1940

Pool—	Parish	Company and farm name	Section	Date of comp.	Production formation	Production depth	Initial production	No. wells June 30
Bayou de Glaize	Iberville	Humble O. & R. Co.'s No. 2-B Wilberts	78- 8s- 8e	April 28	Miocene	8,648-57	345 bbl. per day, ⅛-in. ck.	1
Bayou Pigeon	Iberia	Plymouth Oil Co.'s No. 1 McHugh	13-12s-10e	February 25	Miocene	8,052-72	408 bbl. per day, ⅛-in. ck.	1
Delta Farms	La Fourche	Tide Water Asso.'s No. 1 Delta Farms	6-17s-23e	March 25	Miocene	11,290-11,305	242 bbl. per day, ¼-in. ck.	1
Erath	Vermilion	Texas Co.'s No. 1 Vermilion Sch. Bd.	16-13s- 4e	April 24	Miocene	11,378-89	70 bbl. per day, 9/64-in. ck.	1
Lake Salvador	Plaquemines	California Co.'s No. 1 Delta Minerals	2-15s-10e		Miocene	9,963-74	Flwd. O.&S.W.; well being deep.	1
Neale	Beauregard	Atlantic Ref. Co.'s No. 1 Whitmer	26- 3s-11w	March 31	Wilcox	8,356-70	177 bbl. 12 hours, ⅛-in. ck.	2
Ritchie	Acadia	Vincent, Welch et al's No. 1 R. McManus	21- 7s- 1w	June 19	Miocene	3,525-35	18 bbl. per day, ⅛-in. ck.	1
West Cote Blanche	St. Mary	Texas Co.'s No. 1 State	20-15s- 6e	March 31	Miocene	3,109-36	24 bbl. per day, 11/64-in. ck.	1
Niblett Farms	Jeff Davis	Continental Oil Co.'s No. 1 Niblett Farms	1-11s- 5w	April 8	Oligocene	11,804-24	100 bbl. per day, various cks.	1

which logged the sand at approximately the same level as the discovery well, and the company had cored the sand in another well, ¼ mile east of production. The Sheridan field, was the first crude production opened in Colorado County, and the discovery was made by Shell Oil Co., Inc., with the completion of No. 1 Plow Realty Co., which was completed through perforated casing at 8,135-45 ft. The company is moving the oil by tank car, and is engaged in drilling No. 1 Goodrich, located ½ mile east of the discovery well.

TEXAS GULF COAST

Summary of Wells Completed First Half of 1940

Fields—	Comp.	Prod.	Abd.	Gas
Ace	1	0	1	0
Alta Loma	1	598	0	0
Anahuac	20	11,511	0	0
Anchor	8	1,582	2	0
Bammel	2	31	0	1
Barbers Hill	3	1,296	0	0
Batson	5	79	0	0
Bay City	4	631	0	0
Blessing	1	48	0	0
Boling	1	0	1	0
Caplen	7	684	0	3
Cedar Point	4	452	1	0
Chocolate Bayou	2	268	1	0
Clam Lake	2	152	1	0
Clear Lake	23	2,872	0	3
Conroe	2	0	2	0
Cotton Lake and South Cotton Lake	10	1,502	1	0
Danbury	3	73	2	0
Dickinson	11	899	1	5
East Bernard	1	40	0	0
Esperson	5	542	2	0
Eureka	1	272	0	0
Fairbanks	21	2,363	3	0
Fannett	3	1,773	0	0
Francitas	4	152	3	0
Friendswood	17	7,030	2	0
Ganado	1	53	0	0
Garwood	1	0	1	0
Goose Creek	1	204	0	0
Green Lake	1	311	0	0
Hardin	17	2,916	1	0
Hastings	13	4,530	1	0
High Island	2	372	0	0
Hillje	1	22	0	0
Hull	5	801	1	0
Humble	9	1,090	1	0
Labelle	1	51	0	0
League City	5	629	2	0
Lochridge	2	500	0	0
Lolita	3	753	0	0
Lovells Lake	27	3,354	3	3
Mackay	1	4	1	0
Magnet	5	722	0	0
Manvel	7	2,887	1	0
Markham	5	524	2	0
Martha	2	102	0	0
Mauritz	7	982	3	0
North Creek	2	0	2	0
Old Ocean	11	4,165	0	0
Ogburn	1	120	0	0
Orange	5	1,569	0	0
Orchard	1	32	0	0
Pickett Ridge	5	368	1	0
Pierce Junction	2	232	1	0
Port Neches	5	834	1	0
Rochland	1	50	0	0
Rosenberg	5	125	3	0
Saratoga	2	25	0	0
Satsuma	1	0	1	0
Seabreeze	2	0	1	1
Segno	21	9,652	1	0
Sheridan	1	237	0	0
Silsbee	2	974	0	0
Sour Lake	5	597	0	0
South China	8	795	3	0
South Hunton	2	397	0	0
South Liberty	2	233	0	0
Spanish Camp	1	0	0	1
Spindletop	2	101	0	0
Spurger	9	2,536	1	1
Thompson	53	16,979	4	0
Tomball	6	786	1	0
Turtle Bay	4	162	2	0
Van Vleck	5	1,056	1	0
West Ranch	88	38,296	3	0
West Beaumont	6	807	0	0
West Columbia	17	4,909	1	0
Withers	32	3,265	1	0
Miscellaneous	58	0	58	0
Total	643	144,859	126	18

Completions by Months

Month—	Comp.	Prod.	Abd.	Gas
January	97	20,619	22	3
February	91	19,550	21	1
March	125	28,854	21	4
April	106	22,487	25	6
May	107	24,663	20	1
June	117	28,686	17	3
First half 1940	643	144,859	126	18
First half 1939	684	161,676	117	33
Difference	41	16,817	9	15

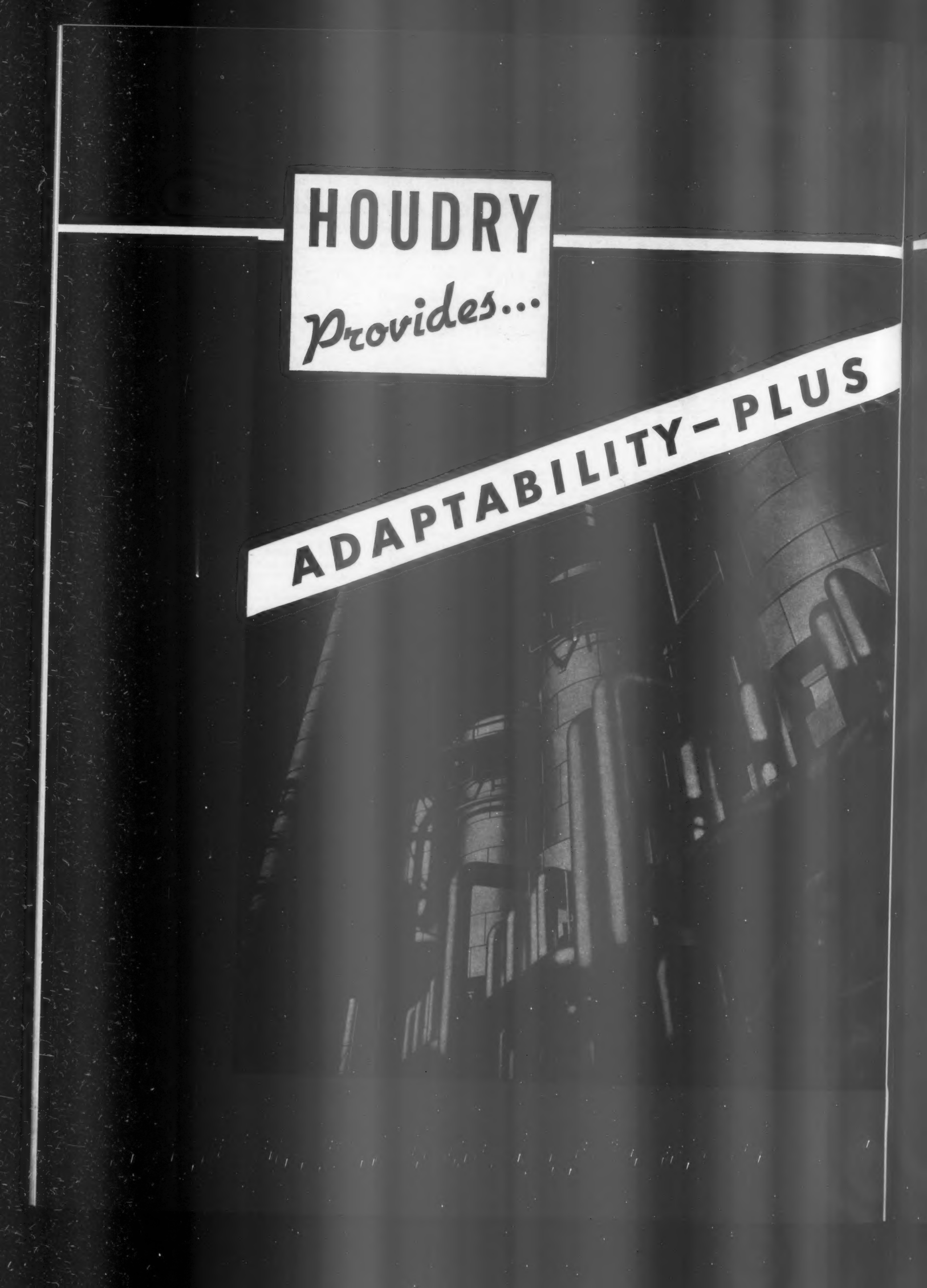
Deeper exploration continues to add additional reserves, and this phase of operation continues to be one of the most outstanding developments in the district. Of the total fields opened in coastal Louisiana, three are producing from sand below 11,000 ft. These include Delta Farms, La Fourche Parish, opened by Tide Water Associated Oil Co. at a depth of 11,290-11,305 ft., the Erath field, Vermilion Parish, producing from sand at 11,378-89 ft., and the Niblett Farms field in Jefferson Davis Parish, opened by Continental Oil Co. at a depth of 11,604-24 ft. A new producing-depth record for the Texas coast was also established at the Chocolate Bayou field, Brazoria County, by the com-

(Continued on Page 96)

LOUISIANA GULF COAST (Continued)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
EVANGELINE:							
Daily average	16,017	15,966	16,099	16,118	16,087	14,657	
Month	496,527	463,021	499,071	483,540	498,697	439,710	2,880,566
GARDEN ISLAND:							
Daily average	2,500	2,573	2,843	2,777	2,999	3,098	
Month	77,500	74,626	88,125	83,300	92,969	92,940	509,460
GIBSON:							
Daily average	3,671	3,671	3,503	3,405	3,571	3,246	
Month	113,801	106,459	108,584	102,152	110,701	97,380	639,077
GILLIS:							
Daily average	4,733	4,750	4,825	4,628	4,612	5,010	
Month	146,723	137,755	149,583	138,854	142,972	150,300	866,187
GOLDEN MEADOW:							
Daily average	7,714	9,757	10,735	12,356	12,420	10,850	
Month	239,134	282,995	332,789	370,708	385,020	325,500	1,936,146
GRAND BAY:							
Daily average	1,805	1,885	2,104	2,771	3,116	2,930	
Month	55,955	54,674	65,233	83,139	96,596	87,900	443,497
GRAND LAKE:							
Daily average	1,261	1,540	2,154	3,091	3,498	3,467	
Month	39,091	44,668	66,768	92,717	108,438	104,010	455,692
GUEYDAN:							
Daily average	418	422	422	420	418	420	
Month	12,958	12,251	13,079	12,586	12,958	12,600	76,432
HAPPYTOWN:							
Daily average	325	325	325	325	319	275	
Month	10,075	9,425	10,075	9,751	9,889	8,250	57,465
HORSESHOE BAYOU:							
Daily average	660	1,098	1,082	1,105	1,192	1,198	
Month	20,460	31,843	33,538	33,150	36,952	35,940	191,883
IOWA:							
Daily average	10,276	10,318	10,484	10,319	10,895	9,098	
Month	318,556	299,255	324,999	309,572	337,745	272,940	1,863,067
JEANERETTE:							
Daily average	3,769	3,701	3,817	3,629	3,583	3,125	
Month	116,839	107,331	118,330	108,856	111,073	93,750	656,179
JEFFERSON ISLAND:							
Daily average	775	775	850	908	954	958	
Month	24,025	22,475	26,334	27,226	29,574	28,740	158,374
KENILWORTH:							
Daily average	192	193	192	212	192	223	
Month	5,852	5,596	5,953	6,370	5,952	6,690	36,513
LAFITTE:							
Daily average	11,220	11,538	12,059	12,650	13,339	12,748	
Month	347,820	334,602	373,822	379,501	413,509	382,440	2,231,694
LAFOURCHE CROSSING:							
Daily average	312	321	329	532	576	586	
Month	9,672	9,303	10,183	15,972	17,856	17,580	80,566
LAKE BARRE:							
Daily average	796	858	945	1,014	946	1,010	
Month	24,676	24,895	29,302	30,426	29,326	30,300	168,925
LAKE LONG:							
Daily average	1,133	1,427	1,608	1,389	1,323	1,374	
Month	35,123	41,392	49,849	41,657	41,013	41,220	250,254
LAKE PELTO:							
Daily average	1,630	1,477	1,424	1,427	1,521	1,448	
Month	50,530	42,855	44,155	42,812	47,151	43,440	270,943
LAKE WASHINGTON:							
Daily average	519	600	600	600	613	530	
Month	16,089	17,400	18,600	18,000	19,003	15,900	104,992
LEEVILLE:							
Daily average	2,740	2,884	3,136	2,982	3,098	3,045	
Month	84,940	83,623	97,203	89,471	96,038	91,350	542,625
LOCKPORT:							
Daily average	734	786	755	725	709	912	
Month	22,754	22,804	23,409	21,735	21,979	27,360	140,041
NEALE:							
Daily average	.....	.....	32	112	249	248	
Month	.....	.....	990	3,360	7,719	7,440	19,509
NEW IBERIA:							
Daily average	9,726	10,735	10,286	10,405	9,060	7,650	
Month	301,506	311,318	318,858	312,152	280,860	229,500	1,754,194
NORTH CROWLEY:							
Daily average	3,326	3,601	3,838	3,930	3,991	4,056	
Month	103,106	104,425	118,974	117,895	123,721	121,680	689,801
NORTH TEPETATE:							
Daily average	91	103	166	111	104	129	
Month	2,821	2,978	5,156	3,317	3,224	3,870	21,366
PARADIS:							
Daily average	368	370	463	717	755	597	
Month	11,408	10,716	14,358	21,517	23,405	17,910	99,314
PLUMB BOB:							
Daily average	256	275	275	275	330	248	
Month	7,936	7,973	8,524	8,249	10,230	7,440	50,352
POTASH:							
Daily average	352	484	486	737	733	920	
Month	10,912	14,034	15,054	22,098	28,723	27,600	118,421
PORT BARRE:							
Daily average	2,046	2,070	2,231	2,088	2,170	2,048	
Month	63,426	60,030	69,175	62,631	67,270	91,440	413,972
QUARANTINE BAY:							
Daily average	3,583	3,721	3,994	4,322	4,440	4,148	
Month	111,073	107,902	123,827	129,657	137,640	124,440	734,539
RACELAND:							
Daily average	1,009	988	990	1,062	1,307	1,197	
Month	31,279	28,693	30,698	31,871	40,517	35,910	198,968
ROANOKE:							
Daily average	1,617	1,849	1,657	1,645	1,746	1,776	
Month	50,127	53,643	51,367	49,356	54,126	53,280	311,899
SORRENTO:							
Daily average	219	222	213	203	236	197	
Month	6,789	6,443	6,596	6,086	7,316	5,910	39,140
SOUTH HOUMA:							
Daily average	537	546	545	516	523	497	
Month	16,647	15,831	16,886	15,488	16,213	14,910	95,975
SOUTH JENNINGS:							
Daily average	233	200	202	175	184	180	
Month	7,223	5,790	6,254	5,259	5,704	5,400	35,630
SOUTH ROANOKE:							
Daily average	1,115	1,164	1,182	1,130	1,070	1,010	
Month	34,565	33,789	36,631	33,900	33,170	30,300	202,355
STARKS:							
Daily average	440	418	384	437	422	470	
Month	13,640	12,130	11,909	13,122	13,082	14,100	77,983
ST. MARTINSVILLE:							
Daily average	475	475	475	475	457	348	
Month	14,725	13,773	14,723	14,249	14,167	10,440	82,077
SULPHUR:							
Daily average	2,631	2,573	2,697	2,446	2,410	2,750	
Month	81,561	74,609	83,603	73,385	74,710	82,500	470,368
SWEET LAKE:							
Daily average	851	899	1,002	1,194	1,315	1,445	
Month	26,381	26,085	31,076	35,815	40,765	43,350	203,472
TEPETATE:							
Daily average	4,775	4,701	4,771	4,803	5,817	4,896	
Month	148,025	136,320	147,898	144,084	180,327	146,880	903,534
TIMBALIER BAY:							
Daily average	115	214	207	188	199	200	
Month	3,565	6,202	6,417	5,652	6,169	6,000	34,005
UNIVERSITY:							
Daily average	9,185	9,669	9,753	10,271	10,929	9,240	
Month	284,735	280,424	302,327	308,131	338,799	277,200	1,791,616

(Continued on Page 96)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Operations Based on

MANY CHARGING STOCKS

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1... Naphtha charge for aviation fuel production
2... Gas Oil for either aviation or motor gasoline
3... Reduced crude for motor fuel.

Years of catalytic development work and the experience of building and operating 17 catalytic cracking units have given this refiner an adaptable unit to meet all his requirements. Your requirements can be fulfilled, too.

Licensing Agents for the Houdry Catalytic Cracking Process

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Engineers and Contractors
for Petroleum Distillation and Refinery Equipment

pletion of Glenn H. McCarthy's No. 1 Andrau, completed at 11,409-12 ft., flowing distillate, gas, and some salt water.

Multiple sands logged in the discovery well of the Bayou Pigeon field, Iberia Parish, marks this field as an exceptionally interesting structure, although development thus far has been confined to the discovery well. The pool was opened with the completion of Plymouth Oil Co.'s No. 1 McHugh, completed in the Miocene sand through perforated casing at 8,052-72 ft. Two additional producing sands were logged, and drill-stem testing at 7,925-50 ft. and at 7,277-85 ft., recovered several hundred feet of pipe-line oil.

LOUISIANA GULF COAST

Summary of Wells Completed First Half of 1940

Field—	Comp.	Prod.	Abd.	Gas
Abbeville	8	1,364	4	0
Anse La Butte	9	1,527	2	0
Bancroft	10	1,590	1	0
Barataria	4	1,321	1	0
Bateman Lake	3	129	0	2
Bayou Blue	3	336	1	1
Bayou Des Glaize	1	345	0	0
Bayou Des Allemands	1	180	0	0
Bayou Pigeon	1	408	0	0
Bay St. Elaine	1	0	1	0
Black Bayou	2	522	1	0
Caillou Island	6	1,113	1	0
Cameron Meadows	2	517	0	0
Chacahoula	3	1,335	1	0
Chalkley	12	3,358	4	0
Charenton	37	3,183	9	0
Cheneyville	9	1,897	1	0
Choctaw	1	28	0	0
Creole	1	146	0	0
Darrow	4	843	2	0
Delta Farms	1	242	0	0
Dog Lake	3	49	1	0
Eola	40	19,298	3	0
Erath	3	70	2	0
Evangeline (Jennings)	11	2,035	2	0
Fausse Point	3	107	1	0
Garden Island	6	2,410	0	0
Gibson	1	901	0	0
Gillis	5	548	1	0
Golden Meadow	76	15,539	4	1
Grand Bay	8	4,616	0	0
Grand Lake	14	3,712	0	0
Hackberry	13	4,335	3	0
Happytown	1	0	1	0
Horseshoe Bayou	2	340	1	0
Iowa	1	389	0	0
Jeanerette	4	924	2	0
Jefferson Island	2	492	0	0
Lafitte	10	6,725	0	0
Lafourche Crossing	1	292	0	0
Lake Hemitage	1	0	1	0
Lake Pelto	4	484	2	0
La Pice	1	48	0	0
La Place	1	72	0	0
Neale	2	597	0	0
New Iberia	18	6,794	2	1
Niblets	1	100	0	0
North Crowley	9	5,642	1	0
North Elton	1	0	1	0
Paradis	2	2,001	0	0
Perkins	1	0	1	0
Plumb Bob	1	540	0	0
Potash	4	1,536	1	0
Port Barre	7	2,217	1	0
Quarantine	5	1,928	0	0
Raceland	2	1,722	0	0
Ritchie	1	18	0	0
Roanoke	1	312	0	0
Sorrento	2	0	2	0
South Jennings	4	212	2	0
South Roanoke	2	485	0	0
Starks	1	0	1	0
Sulfur	2	604	0	0
Sweet Lake	3	758	0	0
University	17	3,431	1	0
Valentine	3	753	1	0
Venice	3	722	0	0
Ville Platte	35	10,002	0	0
West Cote Blanche	1	24	0	0
West Gueydan	3	269	1	0
West Lake Verret	1	334	0	0
White Castle	3	917	0	0
Woodlawn	6	1,316	1	0
Miscellaneous	37	0	37	0
Total	508	127,003	106	5

Completions by Months

Month—	Comp.	Prod.	Abd.	Gas
January	76	20,144	12	0
February	64	18,354	12	0
March	92	25,052	18	1
April	97	24,313	21	2
May	92	21,040	19	1
June	87	18,100	24	1
First half 1940	508	127,003	106	5
First half 1939	319	62,876	107	7
Difference	188	64,057	1	2

Other fields in coastal Louisiana, not listed as proven salt-dome structures which received new sand discoveries included the Chalkley field, Cameron Parish; Barataria, Jefferson Parish; Golden Meadow, La Fourche Parish; Grandy Bay, Plaquemines Parish, and the Eola field in Avoyelles Parish. The latter field produces from the Wilcox, and received its first Cockfield production with the completion of Amerada Petroleum Corp.'s No. 9 Glaze, completed through perforated casing at 6,430-46 ft., for an initial production of 276 bbl. per day, flowing through a $\frac{1}{4}$-in. choke. This sand has been logged in several wells throughout the field, but was never tested.

Of the new discoveries on the Texas coast, probably

LOUISIANA GULF COAST (Continued)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
VALENTINE:							
Daily average	2,365	2,241	2,444	2,524	2,614	2,478	
Month	73,315	64,996	75,758	75,710	81,034	74,340	445,153
VENICE:							
Daily average	1,828	2,088	2,072	2,155	2,445	2,076	
Month	56,668	60,586	64,244	64,636	75,795	62,280	384,189
VERMILION BAY:							
Daily average	325	325	325	201	157	220	
Month	8,075	9,424	10,075	6,017	4,867	6,600	45,058
VILLE PLATTE:							
Daily average	12,581	12,762	13,091	12,988	14,754	15,460	
Month	390,011	370,085	405,818	389,630	457,374	463,800	2,476,718
VINTON:							
Daily average	930	947	884	882	889	1,140	
Month	28,830	27,484	27,418	26,471	27,559	34,200	171,962
WEST GUEYDAN:							
Daily average	565	660	689	686	704	755	
Month	17,515	19,134	21,351	20,578	21,824	22,650	123,052
WEST LAKE VERRET:							
Daily average	327	318	307	297	455	547	
Month	10,137	9,211	9,517	8,918	14,105	16,410	68,298
WHITE CASTLE:							
Daily average	1,838	1,872	1,977	2,152	2,160	1,987	
Month	56,978	54,294	61,299	64,600	66,960	59,610	363,741
WEST HACKBERRY:							
Daily average	3,743	3,994	4,187	4,618	4,262	4,567	
Month	116,033	115,812	129,792	138,547	132,122	137,010	769,316
WOODLAWN:							
Daily average	1,967	1,613	2,037	1,994	2,304	2,210	
Month	60,977	46,770	63,136	59,805	71,424	66,300	368,412
MISCELLANEOUS:							
Daily average	368	370	569	750	906	1,233	
Month	11,408	10,735	17,653	22,495	28,086	36,990	127,367
Daily average	199,927	208,066	213,859	223,639	231,563	221,417	
First 6 months 1940	6,197,739	6,033,901	6,629,629	6,709,461	7,178,470	6,642,500	39,391,700
First 6 months 1939	5,873,911	5,339,712	5,915,203	5,784,900	5,981,853	5,862,600	34,758,179
First 6 months 1938	5,362,349	4,918,340	5,535,763	5,405,100	5,487,403	5,510,700	32,219,655
First 6 months 1937	4,880,436	4,794,688	5,431,753	5,261,381	5,196,656	5,214,750	30,779,664

Miscellaneous pools and their total production (in barrels) for 1940 were: Bayou Bouillon, 6,568; Bayou de Glaize, 8,890; Cankton, 4,260; Erath, 780; Fausse Point, 14,796; Hester, 10,524; Lake Hermitage, 6,378; Lake Mongoulois, 2,152; Lake Salvador, 11,745; La Pice, 15,848; La Place, 12,747; Niblets, 7,410; North Elton, 2,579; South Elton, 11,779; Welsh, 4,091; West Cote Blanche, 6,820. Total production, 127,367 bbl.

GULF COAST TEXAS

(Upper District)

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
ACE:							
Daily average	510	330	458	466	482	399	
Month	15,810	9,584	14,202	13,983	14,942	11,970	80,491
AMELIA:							
Daily average	2,759	3,313	3,303	3,174	2,539	2,321	
Month	85,559	96,088	102,390	95,210	78,709	69,630	527,586
ANAHUAC:							
Daily average	6,152	6,285	9,425	9,266	8,003	6,854	
Month	190,712	182,268	292,182	277,979	248,093	205,620	1,396,854
ANCHOR:							
Daily average	254	371	557	609	835	897	
Month	7,874	10,769	17,278	18,262	25,885	26,910	106,978
ARRIOLA:							
Daily average	58	245	206	210	211	832	
Month	1,798	7,109	6,388	6,306	6,541	24,960	53,102
ARMOUR:							
Daily average	158	64	55	59	159	135	
Month	4,898	1,865	1,702	1,755	4,929	4,050	19,199
BAMMEL:							
Daily average	705	868	904	742	253	231	
Month	21,855	25,163	28,036	22,264	7,843	6,930	112,091
BARBERS HILL:							
Daily average	9,313	9,045	8,959	8,846	8,824	8,651	
Month	288,703	262,295	277,718	265,388	273,544	259,530	1,627,178
BATSON:							
Daily average	1,245	1,371	1,255	1,400	1,410	1,362	
Month	38,595	39,761	38,905	41,995	43,710	40,860	243,826
BAY CITY:							
Daily average	2,615	2,512	2,502	2,390	2,818	2,429	
Month	81,065	72,857	77,596	71,736	87,358	72,870	463,482
BIG CREEK:							
Daily average	358	368	394	364	343	338	
Month	11,098	10,664	12,213	10,914	10,633	10,140	65,662
BLUE RIDGE:							
Daily average	668	771	772	746	745	744	
Month	20,708	22,361	23,927	22,367	23,095	22,320	134,778
BOLING:							
Daily average	1,559	1,484	1,329	1,264	1,368	1,220	
Month	48,329	43,039	41,205	37,919	42,408	36,600	249,500
BUCKEYE-WILSON CREEK:							
Daily average	98	136	143	149	201	318	
Month	3,038	3,944	4,433	4,470	6,231	9,540	31,656
CAPLEN:							
Daily average	245	291	310	339	281	251	
Month	7,595	8,427	9,609	10,174	8,711	7,530	52,046
CEDAR POINT:							
Daily average	1,501	1,286	1,324	1,380	1,197	1,009	
Month	46,531	37,303	41,038	41,403	37,107	30,270	233,652
CLAM LAKE:							
Daily average	153	152	152	160	142	172	
Month	4,743	4,413	4,717	4,813	4,402	5,160	28,248
CLAY CREEK:							
Daily average	393	381	403	419	388	383	
Month	12,183	11,045	12,489	12,562	12,028	11,490	71,797
CLEAR LAKE:							
Daily average	1,049	965	1,002	1,126	1,059	1,095	
Month	32,519	27,987	31,057	33,766	32,829	32,850	191,008
CLEVELAND:							
Daily average	266	264	265	270	191	160	
Month	8,246	7,661	8,214	8,112	5,921	4,800	42,954
CLINTON:							
Daily average	170	151	163	151	151	117	
Month	5,270	4,380	5,040	4,524	4,681	3,510	27,405
CONROE:							
Daily average	21,059	20,390	28,243	27,474	25,354	26,221	
Month	652,829	591,305	875,524	824,223	785,974	786,630	4,516,485
CORDELE:							
Daily average	2,659	2,532	2,523	2,448	2,023	1,734	
Month	82,429	73,434	78,199	73,434	62,713	52,020	422,229
COTTON LAKE:							
Daily average	320	308	305	297	327	320	
Month	9,920	8,925	9,461	8,898	10,137	9,600	56,941
COTTON LAKE—SOUTH:							
Daily average	1,446	1,555	1,501	1,559	1,510	1,500	
Month	44,826	45,103	46,521	46,756	46,810	45,000	275,016
DAMON MOUND:							
Daily average	294	330	283	292	320	308	
Month	9,114	9,583	8,759	8,765	9,920	9,240	55,381

(Continued on Page 99)

the most important, and which is receiving an active drilling campaign, is the Lolita field, Jackson County. The discovery was made with the completion of Wellington Oil Co.'s No. 1 L. Ranch Co. in the Frio sand at 5,933-37 ft. The area was extended about 1½ miles to the west by Barnsdall Oil Co.'s No. 1 Lazarus which is reported to have checked structurally higher than the discovery well. Additional producers have been completed in the extension area and offsets to the discovery well are in the process of completion. Protection acreage is held by numerous major and independent operators and at the end of June there were six rigs running. The structure is believed to be the same type as the Ranch field to the southwest which is now one of the largest reserves in the district due to extensions and new sand discoveries that have been established by a widespread drilling campaign.

A blowout at Stanolind Oil & Gas Co.'s No. 1 Hulen, marred the discovery of the Alta Loma field, southern Galveston County, and the potentiality cannot be accurately determined. The blowout occurred while coring at 9,156-66 ft., and the well is flowing from 500 to 900 bbl. of fluid per hour of which 15 to 65 per cent is salt water and the balance pipe-line oil. The well is flowing through two 1-in. flow lines, and the company is drilling two offsets in an attempt to lower the pressures so the well can be completed in the conventional manner.

A new sand discovery opened in the Greens Lake field, Galveston County, enlarged the potentiality of this field as Sun Oil Co. completed No. 5 Houston Farm Development Co. for an initial production of 311 bbl. per day through a ¼-in. choke. The well is located southeast of the field proper, and production was obtained by perforating casing at 6,445-55 ft.

With the exception of the Liverpool field, Brazoria County, the balance of the new fields were distillate producers, and no additional development has been started. The Liverpool area was in line for an early development program following the completion of Rowan & Nichols Oil Co.'s No. 1 Hubbard, completed in the Frio sand at 8,538-54 ft., for an initial production of 187 bbl. of oil per day flowing through a ⅛-in. choke. Protection acreage is held by several major companies and several new locations are scheduled to be made.

GULF COAST TEXAS UPPER DISTRICT (Continued)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
DANBURY:							
Daily average	307	273	296	281	271	261	
Month	9,517	7,930	9,175	8,423	8,401	7,830	51,276
DICKINSON-GILLOCK:							
Daily average	14,366	10,691	10,708	10,362	9,811	8,353	
Month	445,346	310,036	331,952	310,849	304,141	250,590	1,952,914
ESPERSON:							
Daily average	1,980	1,870	2,214	2,026	1,854	1,845	
Month	61,380	54,219	68,644	60,785	57,474	55,350	357,852
EUREKA:							
Daily average	3,891	2,142	2,932	2,922	2,659	2,065	
Month	120,621	62,111	90,901	87,652	82,429	61,950	505,664
FAIRBANKS:							
Daily average	6,691	8,230	8,370	8,181	7,247	6,102	
Month	207,421	238,663	259,476	245,436	224,657	183,060	1,358,713
FANNETT:							
Daily average	289	300	368	342	367	438	
Month	8,959	8,694	11,405	10,258	11,377	13,140	63,833
FRANCITAS:							
Daily average	311	257	236	228	314	220	
Month	9,641	7,453	7,305	6,837	9,734	6,600	47,570
FRIENDSWOOD:							
Daily average	9,741	9,018	9,177	8,893	7,839	6,596	
Month	301,971	261,531	284,491	266,777	243,009	197,880	1,555,659
GANADO:							
Daily average	77	133	161	187	201	165	
Month	2,387	3,854	4,981	5,597	6,231	4,950	28,000
GOOSE CREEK:							
Daily average	1,581	1,611	1,626	1,527	1,652	1,712	
Month	49,011	46,728	50,419	45,800	51,212	51,360	294,530
HANKAMER:							
Daily average	865	876	892	830	753	750	
Month	26,815	25,411	27,663	24,904	23,343	22,500	150,636
HARDIN:							
Daily average	4,887	5,410	5,637	5,639	5,239	4,031	
Month	151,497	156,882	174,740	169,164	162,409	120,930	935,622
HASTINGS:							
Daily average	17,130	17,079	17,288	16,830	15,661	11,468	
Month	531,030	495,297	535,944	504,890	485,491	344,040	2,896,692
HIGH ISLAND:							
Daily average	2,522	2,533	2,526	2,550	2,592	2,469	
Month	78,182	73,453	78,299	76,487	80,352	74,070	460,843
HITCHCOCK:							
Daily average	718	733	642	680	583	486	
Month	22,258	21,272	19,906	20,388	18,073	14,580	116,477
HULL:							
Daily average	5,057	5,087	5,193	5,372	5,816	5,689	
Month	156,767	147,491	160,968	161,148	180,296	170,670	977,340
HUMBLE:							
Daily average	3,349	2,825	3,048	2,762	3,179	3,120	
Month	103,819	81,931	94,477	82,858	98,549	93,600	555,234
KITTRELL:							
Daily average	341	379	363	418	328	283	
Month	10,571	10,985	11,257	12,533	10,168	8,490	64,004
LA BELLE:							
Daily average	212	202	186	187	50	40	
Month	6,572	5,858	5,751	5,623	1,550	1,200	26,554
LEAGUE CITY:							
Daily average	2,739	2,271	2,365	2,227	2,223	1,760	
Month	84,909	65,845	73,308	66,816	68,913	52,800	412,591
LIVINGSTON:							
Daily average	875	1,859	1,803	1,870	1,668	1,661	
Month	27,125	53,907	55,884	56,098	51,708	49,830	294,552

(Continued on Page 102)

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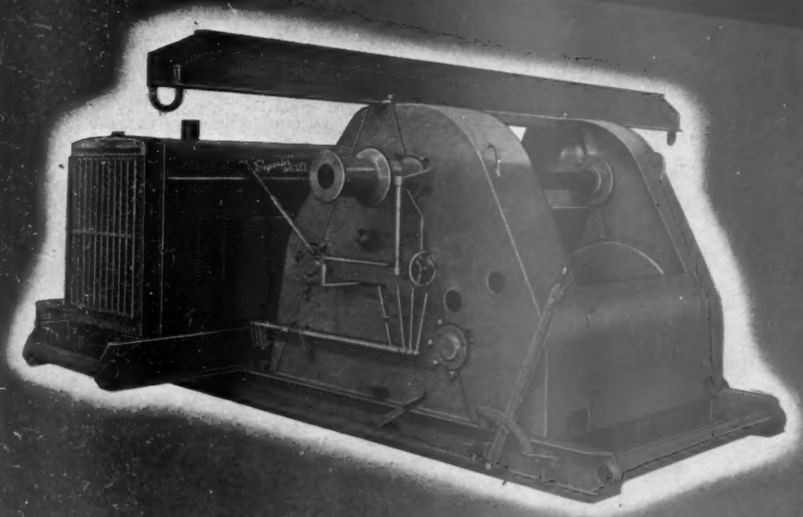
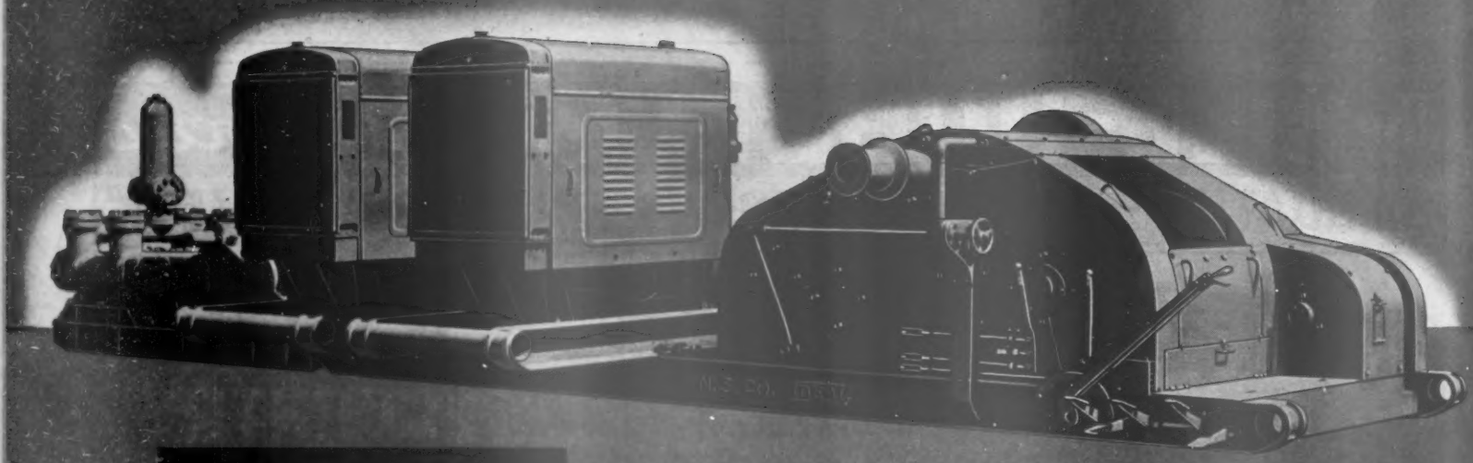


TYPE 40

Rated for drilling to a depth of 4000 feet using 4½" Drill Pipe

A portable unit comprising Draw Works, Engine, and 4-speed Transmission. Simplicity of design and ease of operation has made Type 40 popular with operators.

Our Bulletin No. 236 giving complete and detailed description will be mailed upon request.



TYPE 50

Designed to accommodate two internal combustion engines for drilling operations to 5000 feet with 4½" Drill Pipe

This rig incorporates a six speed Draw Works with chain type transmission and a gear reverse and two internal combustion engines with 350 H.P. maximum combined output. These two engines may be compounded so that their combined power may be used for hoisting or for the rotary and slush pump requirements when drilling.

We will send Bulletin No. 257 descriptive of this Type 50 Rig upon request.

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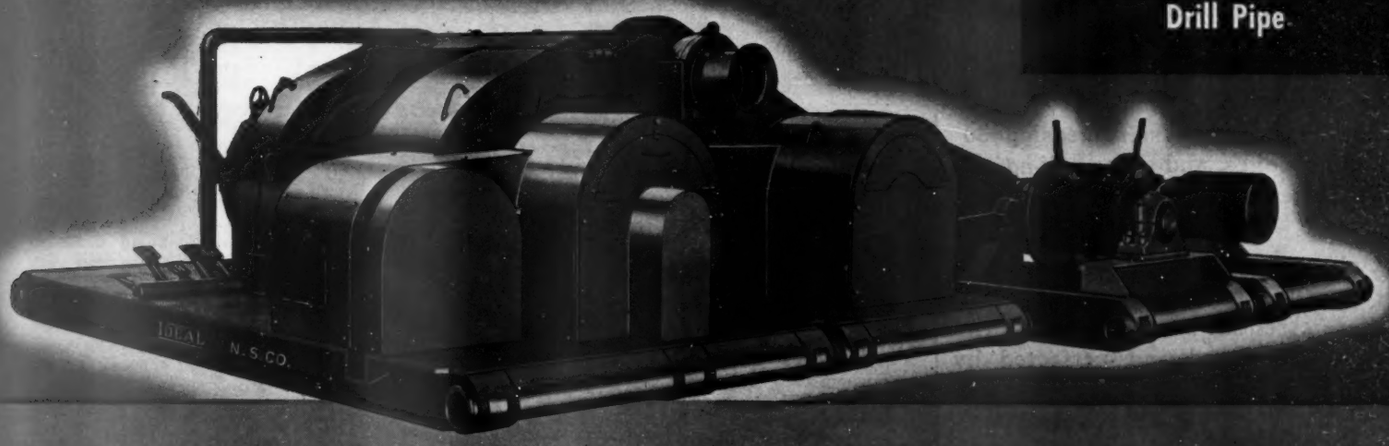
WITH THE NEW.. TYPE 75

Rated Drilling Capacity 7500 feet with 4½" Drill Pipe



The Ideal Type 75 Consolidated Rig includes a complete internal combustion engine powered drilling rig, consisting of the Type 75 Draw Works and Transmission Unit with Master Friction Clutch and Gear Reverse, Slush Pump, Transmission Equipment and two Engines having a maximum combined output of 480 H.P., for drilling operations to 7500 feet with 4½ inch drill pipe.

The Ideal Type 75 Draw Works has a selection of six hoisting speeds and three rotary drive speeds and consists of two units, one—the hoisting drum assembly, and two—a complete oil bath heavy duty transmission unit with three forward speeds and gear reverse, including countershaft and jack shaft. These two units, when bolted together, provide a compact arrangement, and when disconnected offer increased portability.

Write for Bulletin No. 274.

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A valve must remain in operation, free of foreign matter. The best valve therefore *cleans itself* throughout its entire stroke, and has No internal guides to cause foul-up.

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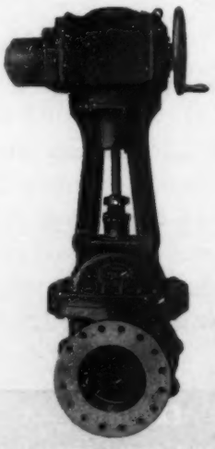
Only the parallel seat, double wedge type slide gate valve provides *all* these essential benefits. This principle, developed and perfected by Ludlow, has been universally accepted and preferred for oil, gas, and water lines since 1866.



Information free on request.

***Ludlow* Valves** are available in all standard sizes and types, and for all special purposes. Illustrated is Ludlow O.S.&Y. valve equipped with Cutler-Hammer TN-4 motor unit, as furnished for oil industry.

The LUDLOW VALVE MFG·CO·INC· TROY·N·Y· SINCE 1866

GULF COAST TEXAS UPPER DISTRICT (Continued)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
LOCHRIDGE:							
Daily average	2,610	2,598	2,635	2,648	2,346	2,298	
Month	80,910	75,345	81,698	79,431	72,726	68,940	459,050
LOUISE:							
Daily average	967	909	924	967	970	972	
Month	29,977	26,366	28,649	29,024	30,070	29,160	173,246
LOVELLS LAKE:							
Daily average	1,460	2,707	2,473	2,507	2,254	2,061	
Month	45,260	78,515	76,656	75,223	69,874	61,830	407,358
MAGNET:							
Daily average	1,386	1,571	1,589	1,582	1,338	1,209	
Month	42,966	45,574	49,248	47,460	41,478	36,270	262,996
MANVEL:							
Daily average	7,564	6,443	9,529	8,938	8,260	6,620	
Month	234,484	186,821	295,400	268,140	256,060	198,600	1,439,505
MARKHAM:							
Daily average	769	1,175	1,067	1,084	1,258	1,170	
Month	23,839	34,072	33,080	32,518	38,998	35,100	197,607
MARTHA:							
Daily average	235	233	240	242	222	193	
Month	7,285	6,753	7,425	7,247	6,882	5,790	41,382
MAURITZ:							
Daily average	196	168	277	428	495	637	
Month	6,076	4,869	8,589	12,831	15,345	19,110	66,820
MYKAWA:							
Daily average	846	826	966	1,027	1,230	1,224	
Month	26,226	23,953	29,953	30,795	38,130	36,720	185,777
NOME:							
Daily average	812	868	868	839	734	790	
Month	25,172	25,174	26,910	25,160	22,754	23,700	148,870
NORTH MARKHAM:							
Daily average	100	122	97	94	112	81	
Month	3,100	3,540	3,021	2,826	3,472	2,430	18,389
OLD OCEAN:							
Daily average	11,631	11,984	11,870	12,416	10,731	10,287	
Month	360,561	347,521	367,990	372,494	332,661	308,610	2,089,837
ORANGE:							
Daily average	2,565	2,579	2,504	2,484	2,314	2,428	
Month	79,515	74,804	77,619	74,513	71,734	72,840	451,025
ORCHARD:							
Daily average	530	459	463	434	181	132	
Month	16,430	13,298	14,356	13,028	5,611	3,960	66,683
PICKETTS RIDGE:							
Daily average	1,893	1,968	1,999	1,925	1,891	1,607	
Month	58,683	57,075	61,981	57,769	58,621	48,210	342,339
PIERCE JUNCTION:							
Daily average	2,063	2,545	1,791	1,880	2,053	1,979	
Month	63,953	73,803	55,523	56,406	63,643	59,370	372,698
PORT NECHES:							
Daily average	875	751	1,010	1,109	1,027	892	
Month	27,125	21,791	31,320	33,279	31,387	26,760	171,662
RACCOON BEND:							
Daily average	2,893	4,464	4,473	4,372	3,941	3,332	
Month	89,683	129,448	138,705	131,190	122,171	99,960	711,157
SARATOGA:							
Daily average	747	763	766	804	793	766	
Month	23,157	22,137	23,741	24,121	24,583	22,980	140,719
SATSUMA:							
Daily average	245	446	423	391	401	322	
Month	7,595	12,931	13,108	11,726	12,431	9,660	67,451
SEABREEZE:							
Daily average	303	337	346	345	173	141	
Month	9,393	9,785	10,719	10,336	5,363	4,230	49,826
SEGNO:							
Daily average	3,369	3,154	4,135	4,198	3,348	3,318	
Month	104,439	91,444	128,193	125,975	103,788	99,540	653,379
SILSBEE:							
Daily average	1,222	1,262	1,270	1,226	1,247	878	
Month	37,882	36,595	39,356	36,765	38,657	26,340	215,595
SOUR LAKE:							
Daily average	979	1,317	1,198	1,281	1,352	1,290	
Month	30,349	38,182	37,149	38,452	41,912	38,700	224,744
SOUTH HOUSTON:							
Daily average	2,188	1,721	2,041	2,081	1,887	1,827	
Month	67,828	49,920	63,266	62,459	58,497	54,810	356,780
SOUTH LIBERTY:							
Daily average	478	565	557	535	568	538	
Month	14,818	16,382	17,258	16,055	17,608	16,140	98,261
SPINDLETOP:							
Daily average	1,686	1,889	1,410	1,805	1,799	1,829	
Month	52,266	54,776	43,704	54,181	55,769	54,870	315,566
SPURGER:							
Daily average	1,741	1,300	1,805	2,026	1,689	1,423	
Month	53,971	37,708	55,943	60,784	52,359	42,690	303,455
SUGARLAND:							
Daily average	6,017	4,854	4,920	4,766	4,235	3,366	
Month	186,527	140,771	152,520	142,967	131,285	100,980	855,050
THOMPSON:							
Daily average	14,687	12,224	13,994	14,297	13,508	13,449	
Month	455,297	354,468	433,875	428,909	418,748	403,470	2,494,767
TOMBALL:							
Daily average	6,114	6,165	6,163	10,465	9,324	7,796	
Month	189,534	178,799	191,056	313,970	289,044	233,880	1,396,283
TURTLE BAY:							
Daily average	887	860	873	870	843	849	
Month	27,497	24,929	27,063	26,100	26,133	25,470	157,192
VAN VLECK:							
Daily average	2,620	3,760	3,595	3,582	3,346	2,800	
Month	81,220	109,041	111,442	107,476	102,726	84,000	595,905
WEST RANCH:							
Daily average	2,319	2,340	2,862	3,327	4,905	4,724	
Month	71,889	67,854	88,713	99,833	152,055	141,720	622,064
WEST COLUMBIA:							
Daily average	7,251	7,075	7,053	6,992	6,468	6,386	
Month	224,781	205,146	218,629	209,786	200,508	191,580	1,250,430
WILLOW SLOUGH:							
Daily average	320	338	373	362	233	195	
Month	9,920	9,812	11,563	10,850	7,223	5,850	55,218
WITHERS:							
Daily average	5,429	5,778	5,776	5,748	5,258	4,890	
Month	168,299	167,576	179,054	172,428	162,998	146,700	997,055
SOUTH CHINA:							
Daily average	196	234	252	306	283	250	
Month	6,076	6,798	7,813	9,171	8,773	7,500	46,131
KATY:							
Daily average	337	238	212	212	210	200	
Month	10,447	6,913	6,559	6,373	6,510	6,000	42,802
WEST BEAUMONT:							
Daily average	3,036	2,787	3,236	3,350	3,433	2,719	
Month	94,116	80,822	100,353	100,516	106,423	81,570	563,800
MISCELLANEOUS:							
Daily average	424	418	334	616	843	964	
Month	13,144	12,115	10,353	18,478	26,124	28,920	109,134
Daily average	235,927	231,742	251,139	254,431	238,897	218,347	
First 6 months 1940	7,313,736	6,720,510	7,785,302	7,634,346	7,405,805	6,550,410	43,410,109
First 6 months 1939	6,644,199	5,937,456	6,933,677	6,722,970	6,906,552	6,374,010	39,518,864
First 6 months 1938	5,983,372	5,137,236	6,102,730	6,150,440	6,083,053	5,519,250	34,976,081
First 6 months 1937	5,464,308	5,285,312	6,395,286	5,977,310	6,437,931	6,165,946	35,726,093

Miscellaneous pools and their total production (in barrels) for the first 6 months of 1940 were: Aldine, 9,632; Allen dome, 956; Bresham, 5,593; Buttermilk Slough, 1,993; Cheek, 1,168; Chocolate Bayou, 10,344; Enda, 709; Garwood, 461; Greens Lake, 5,478; Hilje, 11,075; Lost Lake, 16,778; Mackey, 4,676; North Dayton, 12,209; Palacios, 8,593; Rosenberg, 7,395; Sandy Point, 4,850; Texana, 1,329; East Bernard, 457; Lolita, 5,285; Sheridan, 150; total production 109,134 bbl.

Semiannual Review

KANSAS FIELD ACTIVITY INCREASES, NEW OIL AREAS DEVELOPED

By DAL DALRYMPLE

Extensive development of several large fields in West-Central Kansas, discovery of the first oil pool in the northeastern Kansas sector of the Forest City basin and a steady, conservative increase in drilling operations featured the first half of 1940 in the Sunflower State. Field activity on June 30 was at a 3-year high and indications were that by December 31 the completion total would be the greatest since the record-breaking year of 1937.

Wildcat exploration, exclusive of extension tests near proven areas, was not as widespread as in the first half of 1939, nor was the percentage of discovery as high. Even so, 22 oil discoveries and 3 gas discoveries had been completed and several other wildcats were showing as pool openers at midyear. In addition to the discoveries, many producers that extended proven fields were completed.

The increase in field activity became evident soon after the turn of the year, but material gains were not made until early spring. The number of completions increased from 94 in January to 225 in June, with a corresponding gain in locations and drilling wells. Here is how the record of completions in the first half of this year compares with those of corresponding periods of the preceding 2 years:

	1938	1939	1940
Completions	858	558	872
Oil wells	584	401	685
Gas wells	42	24	28
Dry holes	232	133	159

Presuming the 1940 pace will be maintained in the last half of the year—just doubling the first 6 months' record—and using actual totals for the other 2 years, the pickup in activity is further reflected as follows:

	1938	1939	1940
Completions	1,573	1,358	1,744
Oil wells	1,108	977	1,370
Gas wells	63	72	56
Dry holes	402	309	318

On that basis, then, the 1940 record of completions not only will surpass the totals for the two preceding years but the percentage of oil-well completions will be greater.

Further Increases Seen

Indications, are however, that the margin will be even bigger when the totals are struck at the end of the year. At the end of June it appeared likely that field activity in the next 6 months would be greater than in the first half of the year. Increasing work in the Forest City basin and continued development of such busy pools as Bornholdt, Stoltenberg, Burnett, Hall, Gurney, Bloomer, Trapp, Silica and Zenith are expected to account for much of the additional gains predicted for this year.

The bulk of field activity thus far to date has been confined to proven areas along the Central Kansas uplift. Five counties—Barton, Ellis, McPherson, Rice and Russell—accounted for 563 of the 872 completions in the first half of the year.

Russell County has paced the state for several months and probably will remain the busiest single county during the remainder of the year. It is predicted that practically all of the southwestern quarter of the county eventually will be considered one big oil field. This area contains such pools as Hall, Gurney, Trapp, Coralena, Sellens, Gorham, Eichman and others. As development proceeds some of these pools will be consolidated with others. Already, Hall and Gurney pools are practically united and undoubtedly will become a single field. Several pools have been combined in the Gorham field and in the Trapp field, which extends across the line into Barton County. Although dry holes will be interspersed among the several pools in southwestern Russell County, and there are numerous separate sources of production, the whole seems destined to become one major field. Many locations remain to be drilled in the several pools, few of which have been defined, and a goodly number of them are scheduled for drilling this year.

Barton County, bordering Russell on the south, has been the second busiest county so far in 1940 and will continue to be an active area throughout the year. Three of the state's larger fields are partly in Barton County. In addition to the Trapp field, there are the Silica pool in Barton and Rice and the Bloomer pool in Barton, Ellsworth and Rice. None of these fields have been defined, despite some dry holes.

Silica Moves Eastward

The Silica-Ellinwood district in southeastern Barton County is a typical Kansas field in which dry holes condemn little more than the location on which they are drilled. In that area Silica has been extended westward several times, taking in South Silica and some of the Ellinwood pools. The area is spotted with dry holes, but operators merely plug them and go ahead and drill producing wells on offset locations.

The next two busiest counties are Ellis, western neighbor to Russell, and Rice, eastern neighbor to Barton. The Bemis field, including Cress and Shutts pools, and the Burnett field have accounted for the bulk of Ellis County activity, with scattered operations in other areas. Some of the state's larger oil wells have been completed in that district. The Burnett pool, which extends into Rooks County on the north, is due for considerable new activity as the result of recent completion of a new pipe-line outlet.

Rice County operations have remained fairly consistent and divided between such pools as Silica, Chase, Bloomer, Geneseo, Wherry and lesser areas. A portion of the Bornholdt field, busiest single area in the state, is in eastern Rice and some observers believe subsequent developments may prove Bornholdt and the old Welch pool a common field. Wildcats now drilling or proposed may extend Bornholdt farther west and north in Rice County.

McPherson rates fifth in activity among Kansas counties, due to development of Bornholdt, which straddles the McPherson-Rice line. The North Bornholdt pool, a 1940 discovery, proved a wide area for exploration and subsequently was united with the original field. Many locations remain to be drilled at Bornholdt, assuring a continuation of activity in the area for a considerable period. The outstanding chat field in Kansas, Bornholdt is not a consistent area as small producers may be offset by wells with gusher yield. Flowing production is not uncommon.

Ellsworth is another county that has forged to the front this year and promises to continue busy for many months. Development of the Stoltenberg field in Ellsworth has been outstanding. It has had several extensions in the last 6 months and seems destined to become one of the big fields of the state. Other more active areas include the Wilkins, Stratman and Edwards pools and that part of the Bloomer field in southwestern Ellsworth.

New Pay at Zenith

Activity in the counties mentioned has increased this year in comparison with 1939. Stafford, the sixth most active western Kansas county, has had a slight decline in work, due principally to curtailment of drilling in the Zenith field, which was going strong last year. However, Viola lime has been found productive at Zenith and a considerable development of that zone is under way. Prior to discovery of the lime pay, Zenith production was confined to Misener sand. Field activity in Stafford may be expected to increase considerably when justified by market demand for crude oil, as it is believed the county's sources of supply barely have been tapped.

The bulk of eastern Kansas activity has been confined to Cowley, Butler and Greenwood counties. Cowley county continues to be a favored sphere of action with wildcat operators, and conservative development continues in proven areas. Cowley marked time in field work, there being 48 completions in the first

(Continued on Page 110)

KANSAS OIL DISCOVERIES FIRST HALF OF 1940

Field and county—	Location	Operator—	Month	Number wells (*)	Producing formation	Total depth, ft.	Initial potential
N. Bornholdt, McPherson	18-20- 5w	Central & Springrose	January		Chat	3,348	3,000
Hall-Arbuckle, Russell	23-14-13w	Stanolind Oil & Gas Co.	January	2	Arbuckle	3,190	294
Snider-Simp., Stafford	9-21-11w	Shell Oil Co., Inc.	January	2	Simpson	3,388	378
Ernsting-Arb., Barton	1-20-12w	Crown Petroleum and others	February	2	Arbuckle	3,375	191
Rahn, Cowley	13-34- 5	Jock Garden	February	1	Bartlesville	2,950	1,035
Knop, Barton	6-20-11w	Brown-Willard Oil Co.	February	1	Arbuckle	3,352	229
Krier-Arb., Barton	31-16-11w	Texas Co.	March	2	Arbuckle	3,341	267
Ehler, Ellsworth	35-16-10w	Lauck & Moncrief	March	3	Arbuckle	3,322	911
Wondra, Barton	15-17-12w	Phillips Petroleum Co.	March	1	Lansing	3,054	101
Gurney-Basal, Russell	25-14-14w	Skelly Oil Co.	March	2	Basal sd.	3,139	539
Beaumont-Arb., Greenwood	25-27- 8	Beaumont Oil Co.	March	2	Arbuckle	2,744	50
Severy-Topeka, Greenwood	17-28-11	Ray, Reed and others	April	1	Topeka	765	30
Krier-Lans., Barton	30-16-11w	B. B. & M. Oil Co., and others	April	1	Lansing	3,047	3,000
Kroutwurst, Barton	34-26-11w	George Hinkle	April	1	Arbuckle	3,402	60
Hoffman-Arb., Barton	18-16-11w	M. B. Armer and Vernon Oil Co.	May	1	Arbuckle	3,321	3,000
Hall-Tarklo, Russell	28-14-13w	R. H. Shields	May	1	Tarkio	2,325	2,295
Bitikofer, McPherson	1-20- 1w	Saco & Aladdin	May	1	Chat	2,916	49
W. Lost Springs, Marion	30-17- 4	Harrington & Larieaux	May	1	Chat	2,420	800
Haska, Ellsworth	6-16-10w	Aylward Production Co.	June	1	Arbuckle	3,292	2,321
McLouth, Jefferson	4-10-20	Young & McLaughlin	June	1	Mississippi	1,596	40
Arkansas City, Cowley	15-34- 3	W. M. McKnab	June	1	Burbank	3,286	231
Sander, Ellis	30-13-16w	Gulf Oil Corp.	June	1	Arbuckle	3,458	312
GAS DISCOVERIES							
Kaths, Johnson	33-13-12	F. J. Kasper, trustee	January	2	Squirrel	794	500,000 cu. ft.
..., Cowley	16-34- 5	Mission Oil Co. and others	March	1	Sand	1,756	2,500,000 cu. ft.
McLouth, Jefferson	4-10-20	McLaughlin Sons., Inc.	April	1	Bartlesville	1,916	8,000,000 cu. ft.

*Now included in Bornholdt field.

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KANSAS

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Tl. 6 mos. (bbl.)
BARBER COUNTY:							
Daily average	281	289	287	278	295	286	
Month	8,711	7,801	8,897	8,340	9,145	8,580	51,474
BARTON COUNTY:							
Ainsworth—							
Daily average	1,721	1,543	1,394	1,212	1,211	1,205	
Month	53,351	44,747	43,214	36,360	37,541	36,150	251,363
Albert—							
Daily average	343	278	232	202	215	276	
Month	10,633	8,062	7,192	6,060	6,665	8,280	46,892
Beaver district—							
Daily average	549	512	437	590	470	503	
Month	17,019	14,848	13,547	17,700	14,570	15,090	92,774
Bloomer—							
Daily average	2,962	2,145	2,376	1,841	1,950	1,962	
Month	91,822	62,205	73,656	55,230	60,450	58,860	402,223
Clawson—							
Daily average	568	577	611	322	393	151	
Month	17,608	16,733	18,941	9,660	12,183	4,530	79,655
North and West Ellinwood—							
Daily average	284	349	221	243	327	677	
Month	8,804	10,121	6,851	7,290	10,137	20,310	63,513
Kraft—							
Daily average	867	888	843	744	820	743	
Month	26,877	25,752	26,133	22,320	25,420	22,290	148,792
Krier—							
Daily average	122	136	154	241	209	182	
Month	3,782	3,944	4,774	7,230	6,479	5,460	31,669
Lanterman—							
Daily average	136	148	155	97	101	118	
Month	4,216	4,292	4,805	2,910	3,131	3,540	22,894
Prusa—							
Daily average	700	628	852	639	756	777	
Month	21,700	18,212	26,412	19,170	23,436	23,310	132,240
West Prusa—							
Daily average	170	192	127	73	126	55	
Month	5,270	5,568	3,937	2,190	3,906	1,650	22,521
Miscellaneous—							
Daily average	421	581	674	777	693	927	
Month	13,051	16,849	20,894	23,310	21,483	27,810	123,397
CLARK COUNTY:							
Daily average	49	60	50	58	50	60	
Month	1,519	1,740	1,550	1,740	1,550	1,800	9,899
ELLIS COUNTY:							
Bemis-Shutts—							
Daily average	8,128	7,754	7,547	7,382	6,926	8,824	
Month	251,968	224,866	233,957	221,460	214,706	264,720	1,411,677
Blue Hill—							
Daily average	98	148	183	204	174	267	
Month	3,038	4,292	5,673	6,120	5,394	8,010	32,527
Burnett—							
Daily average	3,137	2,980	4,148	5,348	3,379	5,827	
Month	97,247	86,420	128,588	160,440	104,749	174,810	752,254
Marshall—							
Daily average	236	245	249	234	225	259	
Month	7,316	7,105	7,719	7,020	6,975	7,770	43,905
Ruder—							
Daily average	177	170	204	199	195	196	
Month	5,487	4,930	6,324	5,970	6,045	5,970	34,726
Walters—							
Daily average	773	773	852	823	806	888	
Month	23,963	22,417	26,412	24,690	24,986	26,640	149,108
Miscellaneous—							
Daily average	366	438	410	362	388	368	
Month	11,346	12,702	12,710	10,860	12,028	11,040	70,686
ELLSWORTH COUNTY:							
Breford—							
Daily average	336	344	349	288	299	320	
Month	10,416	9,976	10,819	8,640	9,269	9,600	58,720
Heiken—							
Daily average	13	51	44	44	41	38	
Month	403	1,479	1,364	1,320	1,271	1,140	6,977
Lorraine—							
Daily average	1,598	1,647	1,597	1,611	1,564	1,629	
Month	49,538	47,763	49,507	48,330	48,484	48,870	292,492
Stoltenberg and South Stoltenberg—							
Daily average	486	499	496	572	632	708	
Month	15,066	14,471	15,376	17,160	19,592	21,240	102,875
Stratman—							
Daily average	180	194	236	193	367	996	
Month	5,580	5,626	7,316	5,790	11,377	29,880	65,569
Wilkins—							
Daily average	735	687	785	784	840	887	
Month	22,785	19,923	24,335	23,520	26,040	26,610	143,213
FINNEY COUNTY:							
Daily average	98	120	83	106	95	121	
Month	3,038	3,480	2,573	3,180	2,945	3,630	18,846
GRAHAM COUNTY:							
Daily average	.....	106	247	385	413	159	
Month	.....	3,074	7,657	11,550	12,803	4,770	39,854
HARVEY COUNTY:							
Halstead—							
Daily average	454	425	384	342	360	323	
Month	14,074	12,325	11,904	10,260	11,160	9,690	69,413
Hollow-Nikkel—							
Daily average	1,329	1,409	1,357	1,153	1,242	1,398	
Month	41,199	40,861	42,067	34,590	38,502	41,940	239,159
Sperling—							
Daily average	137	128	130	117	126	109	
Month	4,247	3,712	4,030	3,510	3,906	3,270	22,675
KINGMAN COUNTY:							
Cunningham—							
Daily average	904	882	869	604	593	747	
Month	28,024	25,578	26,939	18,120	18,569	22,410	139,640
McPHERSON COUNTY:							
Bornholdt—							
Daily average	589	768	899	965	1,222	1,621	
Month	18,259	22,272	27,869	28,950	37,882	48,630	183,862
North Bornholdt—							
Daily average	.....	130	177	154	351	190	
Month	.....	3,770	5,487	4,620	11,811	5,700	31,388
Canton, North—							
Daily average	25	26	23	19	19	19	
Month	775	754	713	570	589	570	3,971
Chindberg—							
Daily average	284	247	268	252	291	257	
Month	8,804	7,163	8,308	7,560	9,021	7,710	48,566
Graber—							
Daily average	2,995	3,026	2,907	2,596	2,619	2,541	
Month	92,845	87,754	90,117	77,880	81,189	76,230	506,015
Johnson—							
Daily average	222	168	185	208	220	211	
Month	6,882	4,872	5,735	6,240	6,820	6,330	36,879
Lindsborg—							
Daily average	67	83	83	95	80	37	
Month	2,077	2,407	2,573	2,850	2,480	1,110	13,497
McPherson—							
Daily average	160	165	234	192	183	199	
Month	4,960	4,785	7,254	5,760	5,673	5,970	34,402
Ritz-Canton—							
Daily average	3,720	3,910	4,296	4,100	3,664	3,631	
Month	115,320	113,390	133,176	123,000	113,584	108,930	707,400

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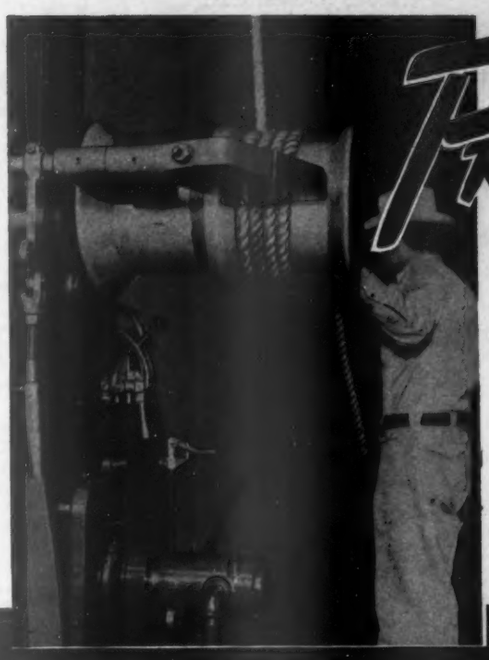
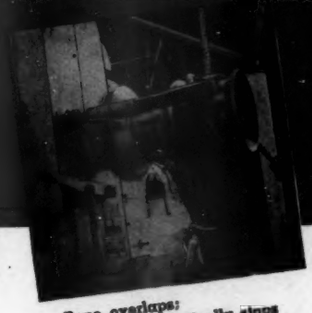


PREVENTS ACCIDENTS

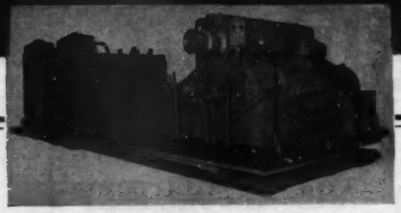
New and Important Development
Protects Cathead Operator From Injury!

WILSON CATHEAD SAFETY

Cathead Safety running normally



Rope overlaps; cathead automatically stops



Here is one of the most important contributions to safety of drillers —the new Wilson Automatic Cathead Safety, which positively prevents injuries formerly caused by drillers becoming entangled in rope.

This Cathead Safety operates automatically *on all three catheads.* In case the rope winds unevenly, or starts to build up to a second layer, the Cathead Safety trips, *throws out the main clutch and applies a powerful brake which stops the cathead almost instantly.*

This brake also holds the cathead and prevents dropping the load which may be on the catline, preventing injury or danger from this source.

Other Star Features of Wilson Streamlined Rigs

- Friction clutches in the drum—both high and low speeds.
- Full circulating water-cooled brakes and clutches.
- Air-controlled drum clutches with finger-tip control.
- Friction clutches on rotary table drive and pump drive.
- New protected instrument panel.
- Cradle mounted hydromatic brake with clutch.
- Hardened, ground and polished alloy steel brake rings.
- Friction latch on hand brake lever.
- Automatic transmission shift.

Wilson Sets the Pace!

Wilson

Reduce Costs! Increase Safety!

THE lower maintenance costs and increased safety you gain with Federal Blocks are the result of entirely new principles of design. Federal straps, enlarged at pinholes add greater lifting capacity and permit the use of giant oversize sheave and becket pins.

Increased lubricating area at bearing contacts reduces friction and replacements. Aluminum alloy shells for manila rope; malleable iron or cast steel shell for wire rope. The aluminum alloy meets Navy specifications.

Federal Blocks soon pay for themselves in maintenance savings. Write or wire for details and prices.

FEDERAL ALLOY BLOCK COMPANY

447 East Pearl St., CINCINNATI, O.

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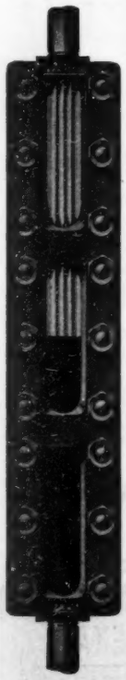
JERGUSON



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Easy to read because . . .

Empty space shows

WHITE

Liquid level appears

BLACK

Dependable at high and low temperatures and pressures—that means effective protection to men and equipment.

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JERGUSON GAGE & VALVE CO.

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SOMERVILLE, MASSACHUSETTS

KANSAS (Continued)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
Roxbury—							
Daily average	68	154	205	144	193	238	
Month	2,108	4,466	6,355	4,320	5,983	7,140	30,372
Voshell—							
Daily average	1,460	1,479	1,505	1,283	1,314	1,603	
Month	45,260	42,891	46,655	38,490	40,734	48,090	262,120
NESS COUNTY:							
Daily average	271	528	580	431	394	288	
Month	8,401	15,312	17,980	12,930	12,214	8,640	75,477
PAWNEE COUNTY:							
Daily average	72	126	150	99	116	133	
Month	2,232	3,654	4,650	2,970	3,596	3,990	21,092
PRATT COUNTY:							
Daily average	91	82	84	70	79	105	
Month	2,821	2,378	2,604	2,100	2,449	3,150	15,502
RENO COUNTY:							
Buhler—							
Daily average	297	339	250	250	180	191	
Month	9,207	9,831	7,750	7,500	5,580	5,730	45,598
Burrton-Haury—							
Daily average	7,920	7,933	7,750	6,751	6,640	7,862	
Month	245,520	230,057	240,250	202,530	205,840	235,860	1,360,057
Hilger—							
Daily average	706	647	716	647	660	765	
Month	21,886	18,763	22,196	19,410	20,460	22,950	125,665
Lerado—							
Daily average	980	951	916	609	596	564	
Month	30,380	27,579	28,396	18,270	18,476	16,920	140,021
Miscellaneous—							
Daily average	147	88	101	91	88	94	
Month	4,557	2,552	3,131	2,730	2,728	2,820	18,518
RICE COUNTY:							
Campbell—							
Daily average	1,161	1,365	1,291	442	428	442	
Month	35,991	39,585	40,021	13,260	13,268	13,260	155,385
Chase—							
Daily average	5,121	5,077	4,951	4,012	3,894	4,053	
Month	158,751	147,233	153,481	120,360	123,814	121,590	825,229
Edwards—							
Daily average	1,375	1,420	1,455	1,161	1,289	1,317	
Month	42,625	14,180	45,105	34,830	39,959	39,510	243,209
Geneseo—							
Daily average	5,290	4,258	3,784	2,818	2,835	3,093	
Month	163,990	123,482	117,304	84,540	87,885	92,790	669,991
Haferman—							
Daily average	246	247	260	196	206	224	
Month	7,626	7,163	8,060	5,880	6,386	6,720	41,835
Keesling—							
Daily average	805	788	750	681	771	709	
Month	24,955	22,852	23,250	20,430	23,901	21,270	136,658
Orth—							
Daily average	231	256	245	236	259	265	
Month	7,161	7,424	7,595	7,080	8,029	7,950	45,239
Ploog—							
Daily average	206	202	196	168	168	208	
Month	6,386	5,858	6,076	5,040	5,208	6,240	34,808
Raymond—							
Daily average	560	564	577	468	675	701	
Month	17,360	16,356	17,887	14,040	20,925	21,030	107,598
Silica—							
Daily average	15,012	14,803	13,557	10,315	11,329	11,723	
Month	465,372	429,287	420,267	309,450	351,199	351,690	2,327,265
Stumps—							
Daily average	2,258	2,183	2,573	1,971	2,143	2,122	
Month	69,998	63,307	79,763	59,130	66,433	63,660	402,291
Welch and North Welch—							
Daily average	291	381	370	333	346	234	
Month	9,021	11,049	11,470	9,990	10,726	7,020	59,276
Wenke and West—							
Daily average	178	225	188	112	133	301	
Month	5,518	6,525	5,828	3,360	4,123	9,030	34,384
Wherry and East Wherry—							
Daily average	3,974	4,295	4,033	3,609	3,543	3,745	
Month	123,194	124,555	125,023	108,270	109,833	112,350	703,225
Miscellaneous—							
Daily average	204	249	271	224	368	333	
Month	6,324	7,221	8,401	6,720	11,408	9,990	50,064
RUSH COUNTY:							
Daily average	1,086	976	885	699	699	677	
Month	33,666	28,304	27,435	20,970	21,669	20,310	152,354
ROOKS COUNTY:							
Daily average	529	648	886	841	638	467	
Month	16,399	18,792	27,466	25,230	19,778	14,010	121,675
RUSSELL COUNTY:							
Anschutz—							
Daily average	177	209	172	159	202	239	
Month	5,487	6,061	5,332	4,770	6,262	7,170	35,082
Atherton—							
Daily average	618	730	688	886	736	612	
Month	19,158	21,170	21,328	26,580	22,816	18,360	129,412
Big Creek—							
Daily average	513	702	868	707	686	615	
Month	15,903	20,358	26,908	21,210	21,266	18,450	124,095
East Big Creek—							
Daily average	211	164	160	101	111	99	
Month	6,541	4,756	4,960	3,030	3,441	2,970	25,698
Fairport—							
Daily average	1,552	1,706	1,744	1,784	1,761	1,735	
Month	48,112	49,474	54,064	53,520	54,591	52,050	311,811
Gorham—							
Daily average	7,099	6,144	6,132	5,112	5,965	5,642	
Month	220,069	178,176	190,092	153,360	184,915	169,260	1,095,872
Greenvale—							
Daily average	169	202	257	183	218	260	
Month	5,239	5,858	7,967	5,490	6,758	7,800	39,112
Gurney—							
Daily average	2,213	2,353	2,676	2,071	2,035	2,041	
Month	68,603	68,237	82,956	62,130	63,085	61,230	406,241
Hall—							
Daily average	3,124	3,261	3,688	2,942	3,224	3,365	
Month	96,844	94,569	114,328	88,260	99,944	100,950	594,895
Neidenthal—							
Daily average	132	130	146	143	129	140	
Month	4,092	3,770	4,526	4,290	3,999	4,200	24,877
Russell—							
Daily average	910	895	914	780	814	1,027	
Month	28,210	25,955	28,334	23,400	25,234	30,810	161,943
Sellens—							
Daily average	518	531	491	454	461	453	
Month	16,058	15,399	15,221	13,620	14,291	13,590	88,179
Trapp—							
Daily average	13,691	14,035	14,340	11,643	12,530	12,765	
Month	424,421	407,015	444,540	349,290	388,430	382,950	2,396,646
Vaughn—							
Daily average	679	616	607	507	502	473	
Month	21,049	17,864	18,817	15,210	15,562	14,190	102,692
Miscellaneous—							
Daily average	461	574	548	598	529	729	
Month	14,291	16,646	16,988	17,940	16,399	21,870	104,134
SCOTT COUNTY:							
Daily average	438	429	444	422	482	476	
Month	13,578	12,441	13,764	12,660	14,942	14,280	81,665

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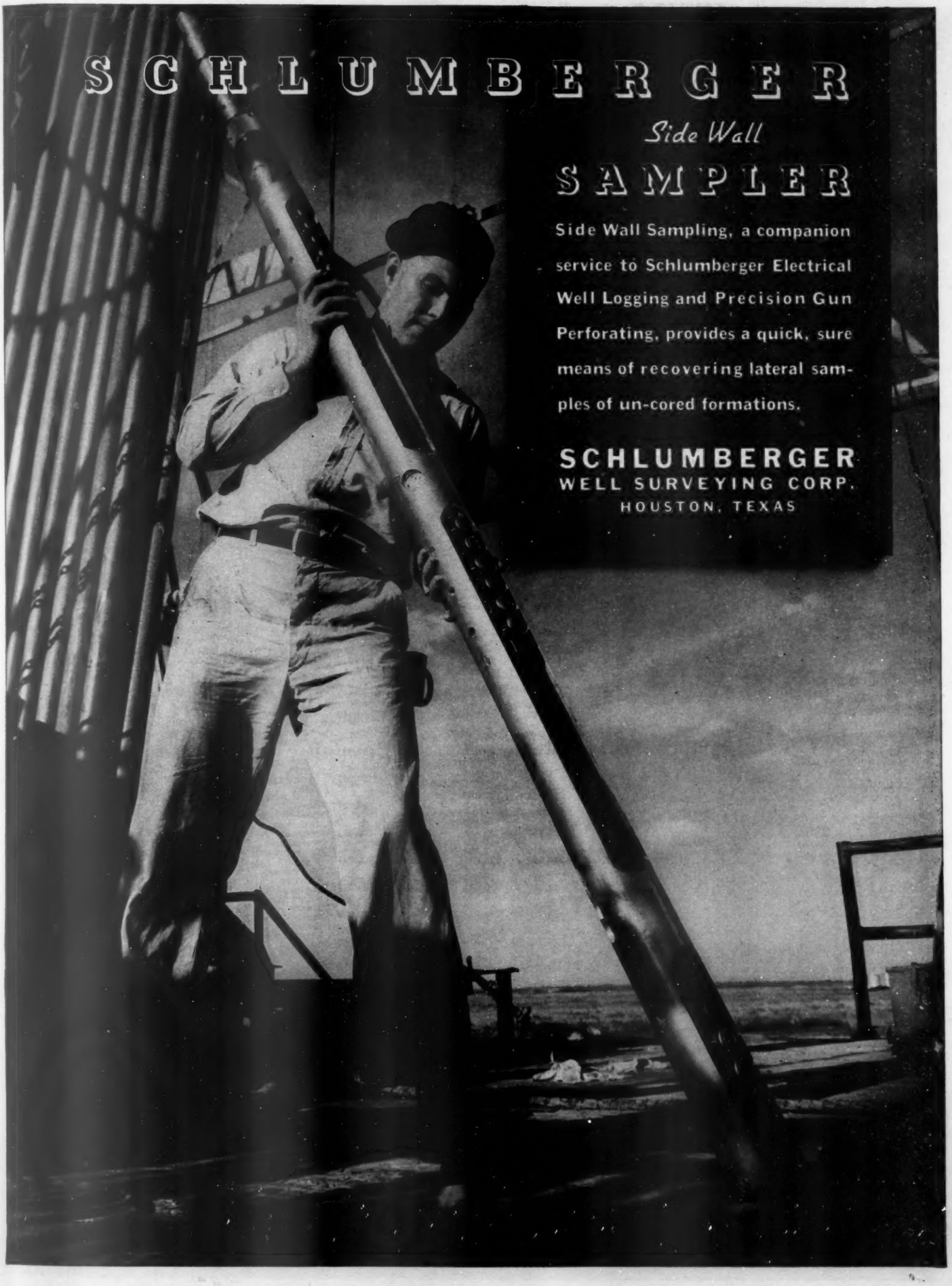
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WELL SURVEYING CORP.
HOUSTON, TEXAS

KANSAS (Continued)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
SEDGWICK COUNTY:							
Eastborough—							
Daily average	537	553	495	565	557	561	
Month	16,647	16,037	15,345	16,950	17,267	16,830	99,076
Goodrich—							
Daily average	719	694	739	605	616	606	
Month	22,289	20,126	22,909	18,150	19,096	18,180	120,750
Greenwich—							
Daily average	691	757	701	661	640	698	
Month	21,421	21,953	21,731	19,830	19,840	20,940	125,715
Robbins—							
Daily average	332	314	267	325	261	326	
Month	10,292	9,106	8,277	9,750	8,091	9,780	55,296
Valley Center—							
Daily average	947	949	951	958	1,023	955	
Month	29,357	27,521	29,481	28,740	31,713	28,650	175,462
Miscellaneous—							
Daily average	59	44	54	62	50	70	
Month	1,829	1,276	1,674	1,860	1,550	2,100	10,289
STAFFORD COUNTY:							
Drach—							
Daily average	159	169	132	188	192	250	
Month	4,929	4,901	4,092	5,640	5,952	7,500	33,014
Gates—							
Daily average	237	218	274	217	232	258	
Month	7,347	6,322	8,494	6,510	7,192	7,740	43,605
Leesburg—							
Daily average	114	126	.....	227	251	594	
Month	3,534	3,654	.....	6,810	7,781	17,820	39,599
Richardson—							
Daily average	1,306	968	1,193	1,046	1,067	1,658	
Month	40,486	28,072	36,983	31,380	33,077	49,740	219,738
Sittner and South Sittner—							
Daily average	243	253	300	274	360	424	
Month	7,533	7,337	9,300	8,220	11,160	12,720	56,270
Snider and South Snider—							
Daily average	94	145	142	101	104	60	
Month	2,914	4,205	4,402	3,030	3,224	1,800	19,575
St. John—							
Daily average	517	408	399	443	451	567	
Month	16,027	11,832	12,369	13,290	13,981	17,010	84,509
Zenith—							
Daily average	4,189	3,751	3,998	3,884	4,145	4,338	
Month	129,859	108,779	123,938	116,520	128,495	130,140	737,731
Miscellaneous—							
Daily average	285	333	297	315	328	307	
Month	8,835	9,657	9,207	9,450	10,168	9,210	56,527
SUMNER COUNTY:							
Caldwell—							
Daily average	133	152	194	192	190	167	
Month	4,123	4,408	6,014	5,760	5,890	5,010	31,205
Churchill—							
Daily average	502	493	440	523	519	510	
Month	15,562	14,297	13,640	15,690	16,089	15,300	90,578
Latta—							
Daily average	175	230	242	222	218	215	
Month	5,425	6,670	7,502	6,660	6,758	6,450	39,465
Oxford—							
Daily average	650	714	641	718	739	755	
Month	20,150	20,706	19,871	21,540	22,909	22,650	127,826
Padgett—							
Daily average	134	209	201	212	208	200	
Month	4,154	6,061	6,231	6,360	6,448	6,000	35,254
Vernon, North—							
Daily average	106	104	114	81	84	91	
Month	3,286	3,016	3,534	2,430	2,604	2,730	17,600
Wellington—							
Daily average	1,620	1,610	1,349	1,508	1,706	1,772	
Month	50,220	46,690	41,819	45,240	52,886	53,160	290,015
Miscellaneous—							
Daily average	98	108	105	97	95	101	
Month	3,038	3,132	3,255	2,910	2,945	3,030	18,310
TREGO COUNTY:							
Daily average	176	175	121	139	138	124	
Month	5,456	5,075	3,751	4,170	4,278	3,720	26,450
BUTLER COUNTY—							
Augusta, North and South—							
Daily average	1,081	1,159	1,174	1,141	1,162	1,138	
Month	33,511	33,611	36,394	34,230	36,022	34,140	207,908
Blankenship—							
Daily average	208	211	185	240	255	215	
Month	6,448	6,119	5,735	7,200	7,905	6,450	39,857
Branat-Sensbaugh—							
Daily average	420	440	629	651	698	626	
Month	13,020	12,760	19,499	19,530	21,638	18,780	105,227
Elbing—							
Daily average	968	1,177	1,101	1,062	1,089	1,059	
Month	30,008	34,133	34,131	31,860	33,759	31,770	195,661
Eldorado—							
Daily average	6,761	7,405	7,386	7,312	7,385	7,305	
Month	209,591	214,745	228,966	219,360	228,935	219,150	1,320,747
Fox-Bush—							
Daily average	304	366	358	377	351	367	
Month	9,424	10,614	11,098	11,310	10,881	11,010	64,337
Garden—							
Daily average	144	172	159	161	168	160	
Month	4,464	4,988	4,929	4,830	5,208	4,800	29,219
Haverhill—							
Daily average	207	235	219	199	228	203	
Month	6,417	6,815	6,789	5,970	7,068	6,090	39,149
Keighley—							
Daily average	110	132	147	137	139	141	
Month	3,410	3,828	4,557	4,110	4,309	4,230	24,444
Kramer—							
Daily average	103	115	123	135	144	127	
Month	3,193	3,335	3,813	4,050	4,464	3,810	22,665
McCullough—							
Daily average	147	235	152	167	164	163	
Month	4,557	6,815	4,712	5,010	5,084	4,890	31,068
Potwin—							
Daily average	616	724	678	678	669	669	
Month	19,096	20,996	21,018	20,340	20,739	20,070	122,259
Reynolds-Schaeffer—							
Daily average	268	321	334	317	338	321	
Month	8,308	9,309	10,354	9,510	10,478	9,630	57,589
Smock-Sluss—							
Daily average	156	160	146	172	163	166	
Month	4,836	4,640	4,526	5,160	5,053	4,980	29,195
Stern—							
Daily average	219	300	281	270	278	272	
Month	6,789	8,700	8,711	8,100	8,618	8,160	49,078
Young—							
Daily average	202	253	245	246	243	244	
Month	6,262	7,337	7,595	7,380	7,533	7,320	43,427
Miscellaneous—							
Daily average	275	325	526	398	353	317	
Month	8,527	9,425	16,306	11,940	10,943	9,510	66,651
COFFEY COUNTY:							
Daily average	32	82	60	53	42	55	
Month	992	2,378	1,860	1,590	1,302	1,650	9,772
COWLEY COUNTY:							
Biddle and West Biddle—							
Daily average	85	107	118	131	122	123	
Month	2,635	3,103	3,658	3,930	3,782	3,690	20,798

(Continued on Next Page)

(Continued from Page 105)

6 months of this year, the same number as in the first half of 1939. There also was little change in Butler and Greenwood counties, the former having 34 completions this year to date as compared with 33 in the corresponding period last year, and the latter having 26 completions as against 24 in 1939. Routine activity continued in the older stripper counties of eastern and southeastern Kansas, but those areas are not covered by the scouts and reports are incomplete.

KANSAS

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas
Barber	6	1,747	2	2
Barton	122	35,655	23	2
Butler	34	1,072	9	0
Coffey	3	38	0	0
Cowley	48	10,544	26	3
Cloud	1	0	1	0
Douglas	1	0	1	0
Ellis	107	37,499	7	0
Ellsworth	67	18,988	16	0
Graham	2	956	1	0
Grant	1	0	0	1
Greenwood	26	553	6	0
Gove	1	0	1	0
Harvey	2	698	0	0
Jefferson	2	40	0	1
Johnson	6	5	2	3
Kingman	4	0	1	3
Lyon	3	15	2	0
Leavenworth	1	0	1	0
McPherson	72	23,165	2	0
Marion	9	1,010	3	0
Miami	1	0	0	1
Montgomery	1	22	0	0
Pawnee	3	87	2	0
Pratt	7	1,352	0	4
Reno	7	766	2	1
Rice	103	26,792	21	1
Rooks	9	1,186	3	0
Rush	1	0	0	1
Russell	159	59,031	15	0
Sedgwick	2	0	2	0
Sheridan	1	0	1	0
Stafford	47	13,867	5	0
Stevens	5	0	0	5
Sumner	2	313	0	0
Trego	2	0	2	0
Woodson	4	53	2	0
Total	872	235,454	159	28

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	94	25,022	17	3
February	104	24,658	14	4
March	126	37,125	23	3
April	148	37,667	22	4
May	175	51,596	37	7
June	225	59,386	46	7
First 6 months 1940	872	235,454	159	28
First 6 months 1939	558	175,962	133	24
Difference	314	59,492	26	4

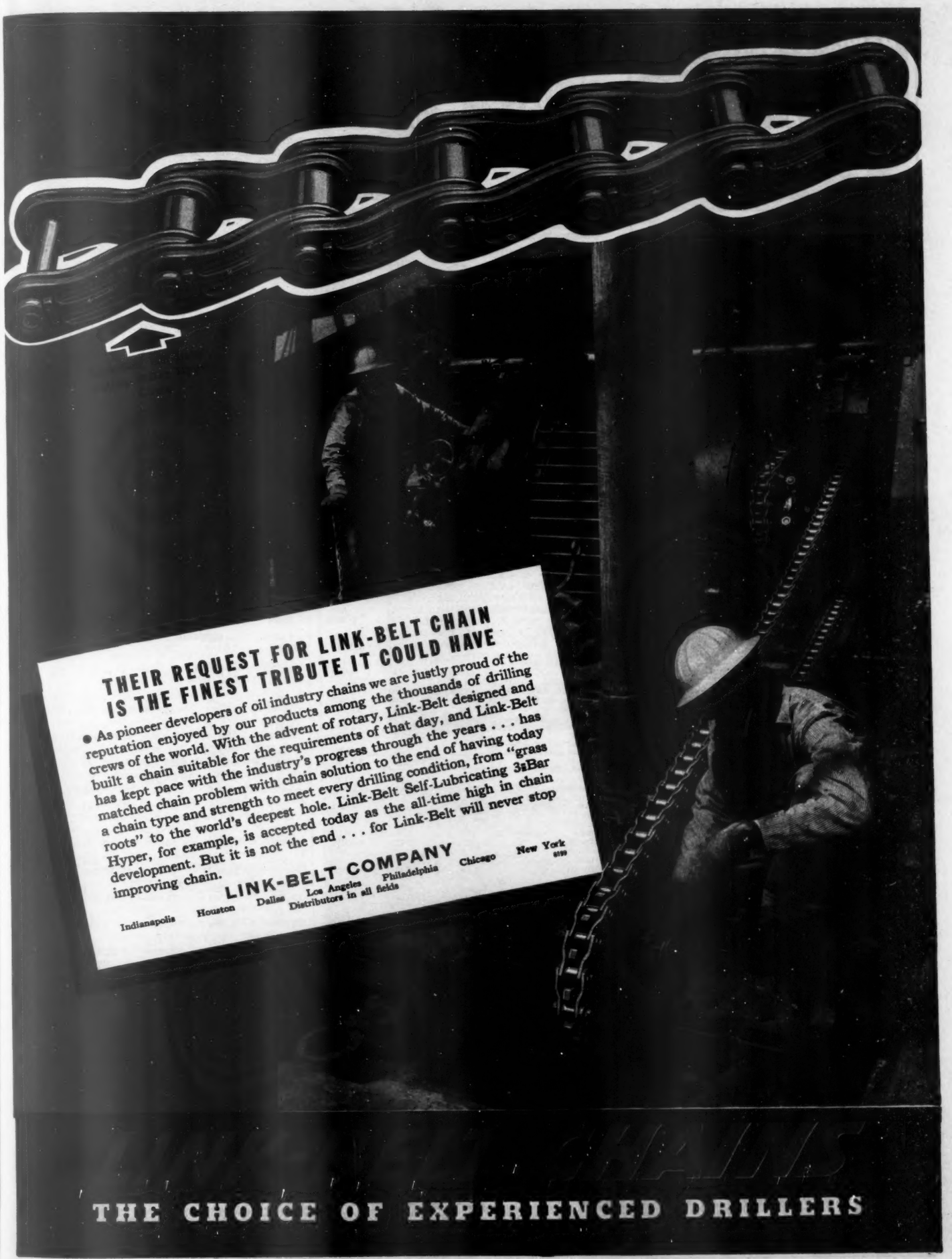
Results of Wildcat Drilling

County—	Oil wells	Gas wells	Dry holes	Average depth of dry holes, ft.
Barton	2	0	6	3,415
Butler	0	0	7	3,138
Cloud	0	0	1	3,407
Cowley	1	1	12	3,327
Douglas	0	0	1	1,588
Ellis	1	0	2	3,503
Ellsworth	3	0	7	3,265
Gove	0	0	1	5,190
Greenwood	2	0	4	1,928
Jefferson	1	1	0	0
Johnson	0	1	2	1,617
Kingman	0	0	1	4,315
Leavenworth	0	0	1	1,505
Marion	0	0	3	2,620
McPherson	2	0	2	3,134
Pawnee	0	0	2	3,956
Reno	0	0	2	3,947
Rice	0	0	7	3,435
Rooks	0	0	2	3,691
Russell	0	0	4	3,275
Sedgwick	0	0	1	4,045
Sheridan	0	0	1	4,865
Stafford	1	0	1	4,003
Trego	0	0	2	4,447
Total	13	3	72	

Average depth, oil wells, ft.	2,874
Average depth, gas wells, ft.	1,168
Average depth, dry holes, ft.	3,271
Percentage of oil wells	14.77
Percentage of gas wells	3.41
Percentage of dry holes	81.82

The Forest City basin area remains the big question mark. The discovery of oil near Falls City, in southeastern Nebraska, late in 1939 revived the outlook for that four-state district. Failure of numerous tests in Missouri and two or three in northeastern Kansas had soured many operators on the basin, and exploration was dwindling when the Falls City pool was discovered. That caused basin operators to re-examine their hole cards and, as the Nebraska strike wes less than 5 miles north of the Kansas line, it cheered those who thought northeastern Kansas was a prospective oil country.

Later developments in the Falls City pool and the discovery of an oil and gas pool in Jefferson County, Kansas, gave additional encouragement to basin operators. It now looks like northeastern Kansas will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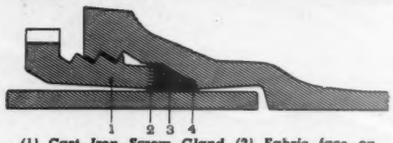

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have widespread exploration, and numerous wildcats probably will be drilled in that district in the next 6 months.

Oil in Jefferson

The discovery of oil in Jefferson County, following discovery of gas in the same area, was the first definite result of exploration in the Kansas part of the basin, although oil was found in shallow zones in Johnson County, on the south flank of the basin, in 1939. The Jefferson discovery well was a small producer, but so was the discovery well in the East Texas field. It at least proves the presence of oil in the Kansas basin.

Other northeastern Kansas tests have been started in Jefferson, Leavenworth, Douglas, Johnson and Nemaha counties, and additional wildcats are contemplated. Brown County, southern neighbor to Richardson County, Nebraska, and its Falls City pool, probably will have one or more tests this year and it is predicted Atchison, Doniphan and other northeastern counties will share in the exploration.

KANSAS (Continued)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
Burden—							
Daily average	177	172	168	170	173	169	
Month	5,487	4,988	5,208	5,100	5,363	5,070	31,216
Darien—							
Daily average	167	207	135	80	73	130	
Month	5,177	6,003	4,185	2,400	2,263	3,900	23,928
David and South David—							
Daily average	204	229	162	163	222	157	
Month	6,324	6,641	5,022	4,890	6,882	4,710	34,469
Eastman—							
Daily average	123	141	135	142	129	139	
Month	3,813	4,089	4,185	4,260	3,999	4,170	24,516
Frog Hollow—							
Daily average	745	441	457	382	411	396	
Month	23,095	12,789	14,167	11,460	12,741	11,880	86,132
Hittle—							
Daily average	2,758	2,684	2,565	2,141	1,686	2,116	
Month	85,498	77,836	79,515	64,230	52,266	63,480	422,825
Rainbow Bend and West Rainbow Bend—							
Daily average	950	987	967	1,013	987	1,002	
Month	29,450	28,623	29,977	30,390	30,597	30,060	179,097
Rock—							
Daily average	182	174	178	176	172	172	
Month	5,642	5,046	5,518	5,280	5,332	5,160	31,978
East Rock—							
Daily average	133	138	140	197	191	163	
Month	4,123	4,002	4,340	5,910	5,921	4,890	29,186
North Rock—							
Daily average	67	68	59	48	47	51	
Month	2,077	1,972	1,829	1,440	1,457	1,530	10,305
Slick-Carson—							
Daily average	148	152	155	166	155	162	
Month	4,588	4,408	4,805	4,980	4,805	4,860	28,446
State—							
Daily average	201	208	199	188	204	184	
Month	6,231	6,032	6,169	5,640	6,324	5,520	35,916
Trees—							
Daily average	160	167	159	162	145	160	
Month	4,960	4,843	4,929	4,860	4,495	4,800	28,887
Weathered—							
Daily average	682	673	632	557	547	584	
Month	21,142	19,517	19,592	16,710	16,957	17,520	111,438
Winfield—							
Daily average	273	321	288	265	250	267	
Month	8,463	9,309	8,928	7,950	7,750	8,010	50,410
Miscellaneous—							
Daily average	904	1,151	1,053	925	952	929	
Month	28,024	33,379	32,643	27,750	29,512	27,870	179,178
ELK COUNTY (western part)—							
Daily average	558	717	567	488	613	514	
Month	17,298	20,793	17,577	14,640	19,003	15,420	104,731
GREENWOOD, WOODSON, AND LYONS COUNTIES:							
Atyeo, Browning, Pixley, Teeter, and Scott Trend—							
Daily average	1,364	1,303	1,773	1,606	1,768	1,611	
Month	42,284	37,787	54,963	48,180	54,808	48,330	286,352
Burkett, Polhamus, Sallyards, and Thrall Trend—							
Daily average	1,009	1,094	1,087	1,169	1,268	1,124	
Month	31,279	31,726	33,697	35,070	39,308	33,720	204,800
DeMalorie-Sowder—							
Daily average	630	660	651	689	655	674	
Month	19,530	19,140	20,181	20,670	20,305	20,220	120,046
Dunaway—							
Daily average	137	192	192	197	213	187	
Month	4,247	5,568	5,952	5,910	6,603	5,610	33,890
Hamilton—							
Daily average	229	307	255	281	273	294	
Month	7,099	8,903	7,905	8,430	8,463	8,820	49,620
Lamont—							
Daily average	293	377	334	361	347	357	
Month	9,083	10,933	10,354	10,830	10,757	10,710	62,667
Madison—							
Daily average	476	578	534	502	501	506	
Month	14,756	16,762	16,554	15,060	15,531	15,180	93,843
Quincy—							
Daily average	492	621	623	526	516	544	
Month	15,252	18,009	19,313	15,780	15,996	16,320	100,670
Reese—							
Daily average	113	150	126	122	120	123	
Month	3,503	4,350	3,906	3,660	3,720	3,690	22,829
Seeley-Wick—							
Daily average	550	803	675	765	813	752	
Month	17,050	23,287	20,925	22,950	25,203	22,560	131,975
Virgil and North Virgil—							
Daily average	1,158	1,579	1,536	1,576	1,681	1,562	
Month	35,898	45,791	47,616	47,280	52,111	46,860	275,556
Wiggins—							
Daily average	118	136	138	138	124	136	
Month	3,658	3,944	4,278	4,140	3,844	4,080	23,944
Funkhouser—							
Daily average	90	167	141	133	149	134	
Month	2,790	4,843	4,371	3,990	4,619	4,020	24,633
Winterschied—							
Daily average	480	719	621	637	659	639	
Month	14,880	20,851	19,251	19,110	20,429	19,170	113,691
Miscellaneous—							
Daily average	312	611	531	567	661	508	
Month	9,672	17,719	16,461	17,010	20,491	15,240	96,593
MARION COUNTY:							
Lost Springs—							
Daily average	786	370	1,048	1,241	1,424	1,070	
Month	24,366	10,730	32,488	37,230	44,144	32,100	181,058
Miscellaneous—							
Daily average	311	570	526	486	509	477	
Month	9,641	16,530	16,306	14,580	15,779	14,310	87,146
EASTERN COUNTIES—							
Eastern Elk, Montgomery, Wilson, eastern Woodson, Franklin, Miami, Anderson, Linn, Allen, Neosho, Labette and Johnson—							
Daily average	6,043	8,267	8,409	7,675	8,080	7,955	
Month	187,333	239,743	260,679	230,250	249,860	238,650	1,406,515
Daily average	168,984	173,468	174,780	157,104	160,248	169,060	167,252
First 6 months 1940	5,238,504	5,030,572	5,418,180	4,713,120	4,967,688	5,071,800	30,439,864
First 6 months 1939	4,677,993	4,262,552	5,177,124	5,064,810	5,132,731	5,043,870	29,359,080
First 6 months 1938	5,468,555	4,658,813	5,172,784	4,968,360	4,614,784	4,515,450	29,398,746
First 6 months 1937	5,244,673	5,236,644	5,866,936	5,827,230	6,241,881	5,908,470	34,325,835
First 6 months 1936	4,343,751	4,002,348	4,675,296	4,835,370	4,754,687	4,442,040	27,053,492

Discoveries in Nebraska Revive Forest City Area

By DAL DALRYMPLE

Lingering doubts that the Forest City basin was an oil country were dispelled by developments in the Nebraska and Kansas sectors of the four-state area in the first half of 1940. Although additional failures marked efforts to find oil in the Missouri and Iowa sectors, the operators in those states were encouraged to continue their search by the discoveries on the other side of the Missouri River.

The Falls City pool in Richardson County, southeastern Nebraska, was discovered late in 1939 but the area did not begin to get real action until the spring of this year, when developments proved that a pool of some size had been found. The discovery well, Pawnee Royalty Co.'s No. 1 Boice, C NE NE Section 18-1n-16e, about 4 miles west of Falls City, found oil in Hunton lime at total depth of 2,292 ft., and operators began a 60-day pumping test in an attempt to qualify for the $15,000 bonus offered by the state for the first commercial well to be completed in Nebraska. It failed on that test when water broke in and the oil yield dwindled. After the hole was cleaned out and reconditioned, production averaged 100 bbl. of oil and 300 bbl. of water daily for a time.

In the meantime the Pawnee company drilled its No. 1 Meyer, C NW NW Section 24-1n-15e, southwest of the discovery, found showings of oil in Viola lime but was dry and abandoned in March at 3,710 ft. The operators decided to deepen the discovery well to the Viola, in an effort to increase production, failed and drilled on to the Arbuckle lime at 3,268-3,300 ft., which also was barren. The hole was plugged back to Hunton pay and at midyear was shut in.

State Bonus Sought

Next test to be drilled was Pawnee's No. 1 Bucholz, C NW SW Section 17-1n-16e, about ½ mile south and ¼ mile east of the discovery. It checked 59 ft. higher on structure than No. 1 Boice, finding Hunton lime at 2,217-32 ft., and was acidized and completed in May, flowing 330 bbl. daily. It began the 60-day pumping test in an attempt to qualify for the bonus, and indications were it would make the grade as it was past the half-way mark and still going strong on June 30.

Harry Harper, contractor who had drilled the Pawnee wells, next drilled his No. 1 Sibbernsen, SE NE NW Section 20-1n-16e, on acreage received from the Pawnee company. Location was ¾ mile southeast of the Bucholz and less than 3 miles from the Nebraska-Kansas line. It was completed late in June in Hunton lime at 2,210-36 ft., having initial flow of 744 bbl. of oil daily after acidizing. It was estimated good for 1,500 bbl. daily on the pump, but was shut in without a potential test.

The Bucholz and Sibbernsen strikes provided the necessary spark to revive leasing and set off a more extensive drilling campaign. Leasing spread into Nemaha and Pawnee counties, Nebraska, lapped over into Holt and Atchison counties, Missouri, and Brown and Nemaha counties, Kansas. Buyers took leases for several major companies and independently. Indian Territory Illuminating Oil Co. completed a 4 months' seismograph survey in Nebraska, which was supplemented by core drilling, and is drilling a wildcat in Section 29-3n-16e, about 7 miles north of Falls City. Several tests have been started by other operators in Richardson and Nemaha counties, and at midyear indications were that a score or more tests would be drilled in southeastern Nebraska during the remainder of this year.

New Pool Indicated

Opening of a second pool in Richardson County is indicated at Uhri Oil Co.'s No. 1 Ogle, Section 9-1n-14e which has found oil in Hunton lime at about 2,259 ft. It is 10 miles west of the Falls City pool.

After several failures were drilled in northeastern Kansas, Young & McLaughlin completed a small producer in Jefferson County in June to give that state its first Forest City basin pool. Their No. 1 McLeod, C NW SW Section 4-10-20e, was a 40-bbl. producer in Mississippi lime at 1,475-1,594 ft. It is about ¼ mile south of a gas-discovery well completed several weeks earlier in the year. Several tests are being drilled in Jefferson, Douglas, Johnson, and Nemaha counties, in the Kansas sector, and others are expected to be started soon.

Only one well was completed in Iowa, it being Phillips Petroleum Co.'s No. 1 Creston, Section 31-71-30w, Union County. It was marked off as a failure in March at 2,856 ft. in dry Arbuckle lime. Two or three tests are being drilled or are planned in other Iowa counties.

After an uneventful winter during which activity practically ceased in Missouri, operations were resumed in several counties early this year but by June 30 all completions were tagged "dry and abandoned," with the exception of a shallow gas well or two. Several showings of oil were found in some of the tests, and in one Schuyler County well some oil was bailed from upper zones, but none of the showings proved to be of commercial importance. Completions of the first half year by counties were: Buchanan 1, Clay 1 shallow gas well, Jackson 2, Mercer 1, Platte 4, Schuyler 2. In addition, Carter Oil Co. drilled a slim-hole stratigraphic test in Buchanan County, but no information was released. Several wells were being drilled and others due to start soon in Missouri at midyear.

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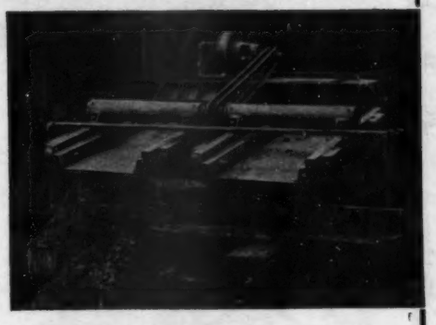

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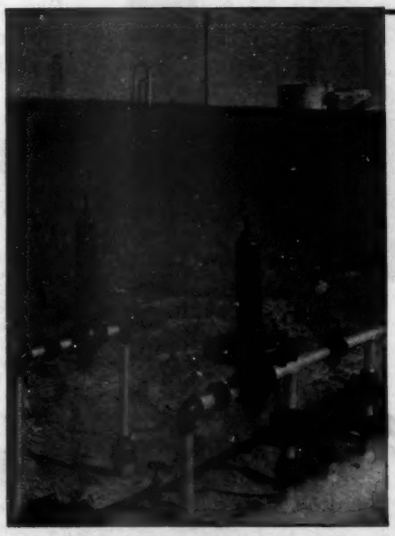

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Semiannual Review

IMPORTANT EXTENSIONS TO TINSLEY; NEW POOLS IN ARKANSAS

By GEORGE WEBER

Unprecedented wildcatting in Mississippi highlighted the first 6 months' drilling activity in the South. Arkansas, with an abrupt decline in proven-field drilling, attracted interest late in the period with two field discoveries. North Louisiana gained one new oil field as shallow-field drilling increased and three deep tests in established fields proved failures.

Mississippi

One new field discovery and important extensions to the Tinsley field brought Mississippi into prominence, as the state swung into a record drilling campaign on many of the several hundred blocks assembled late in 1939 and early this year.

Wildcat drilling in general was disappointing, with a record of only one new field discovery for 42 rank wildcats completed as failures. The volume of wildcatting increased from the first of the year, following an active leasing and geophysical campaign which resulted in the blocking of nearly 10 million acres and the greatest current concentration of geophysical activity in the nation.

The large percentage of failures in the wildcatting in Mississippi is not considered indicative of the state's production chances, however, for in the opinion of geologists familiar with the work, wildcats have been poorly located with respect to structures, and few of them have been drilled deep enough.

Pickens Discovery

An important factor in the current wildcatting activity was the discovery in March of oil on a small geophysical structure in eastern Yazoo County by the Kingwood Oil Co.'s No. 1 Wilburn, The Pickens discovery, although not of importance from a reserve standpoint, nevertheless served to accelerate wildcatting and leasing in the state by proving that small structures would produce. Tinsley and Jackson, the state's major oil and gas fields are both the result of pronounced and extensive uplift, and prior to Pickens discovery it was believed by many that smaller geophysical prospects had small chance of production.

Pickens was defined on the northeast by the second test drilled, on close spacing, but later wells have extended production to the south and southwest. Pickens wells are making water and the reserve estimates on the field cannot, on present production, be placed at a large figure.

Tinsley Extensions

Of greater importance to Mississippi's oil production and reserves, was the extension of the Tinsley field, also in Yazoo County. At the beginning of the year the field consisted of nine producers in the Woodruff sand of the Selma formation and the Stevens sand of the underlying Eutaw. A north extension, which was to direct most of the drilling in that direction, had been completed.

By the end of June, Tinsley production had risen to a potential of 34,000 bbl. daily, with restricted purchases allowing an actual daily production of about 8,500 bbl. Total producers now number 62, most of which are flowing and pumping from the Woodruff sand.

An important gain in established reserves at Tinsley was revealed by edge and outpost drilling, particularly to the northwest. The Woodruff sand, which is missing in a limited area near the center of the field, thickens gradually in all directions, and shows as much as 102 ft. of oil saturation on the present west edge. The field has been defined only on the east and estimated reserves ultimately recoverable are placed at nearly 25 million barrels.

While most development was in the Woodruff sand, the Stevens sand was further developed, and an intervening sand, named the Perry sand was opened to production in the Union Producing Co.'s No. 4 Perry. Late in June, what is believed to be another deeper sand was discovered on the north edge of the field in Slick-Urschel Oil Co.'s No. 7 Slick estate. At first thought to be located in the Tuscaloosa formation, the new sand is now believed to be in the Eutaw, and may belong to a group of sands which some geologists class as the Stevens group. Faulting complicates the subsurface picture at Tinsley, and further study may show that other than the four producing sands are oil bearing. Although no wells at present are producing from more than one sand, it is definitely proven that some will produce from two and possibly three horizons.

Wildcatting

Many major and independent oil operators completed wildcat tests in the state during the first half of 1940. Altogether, 104 tests were drilled in the state, placing it ahead of Arkansas in actual drilling volume. A total of 21 counties throughout the state had tests drilled, with the largest volume of activity centered in the west central section of the state, where the Lower Cretaceous horizons, the Selma chalk, the Eutaw and the Tuscaloosa formations present the best possibility for discovery.

Although Alabama gained in leasing and wildcatting, the state is only beginning to receive attention. By the end of June leasing and geophysical work was active in the Northwest Alabama basin, a Paleozoic play, and in the southwest sector of the state.

Georgia and Florida continued quiet during the first half of this year, although the current interest in Mississippi and western Alabama may be expected to spread eastward and include those states within the next few months.

Arkansas

With completion of drilling campaigns in the Magnolia and Schuler fields, drilling volume declined considerably in South Arkansas during the first half of 1940. Wildcatting was sustained, however, with testing of several of the Smackover lime prospects discovered by geophysics over the past 18 months.

The percentage of success in exploring the Smackover lime during the first half of 1940 was one discovery for seven tests drilled. Numerous other wildcat tests to lesser depths were drilled, and two new fields in the Travis Peak and Paluxy were brought into production. Of the two Smackover lime fields discovered late in 1939, Big Creek proved to be a gas field and has had no further development to date. Dorcheat, in southwestern Columbia County was extended by five offsetting tests and studies have shown its production to be

ARKANSAS

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Tl. 6 mos. (bbl.)
ATLANTA:							
Daily average	780	803	919	1,216	2,263	2,461	
Month	24,168	23,408	28,486	36,486	70,162	73,833	256,543
BIG CREEK:							
Daily average	5	5	.....	40	70	64	
Month	155	145	.....	1,200	2,170	1,933	5,603
BUCKNER:							
Daily average	2,531	2,463	2,050	2,203	2,354	2,287	
Month	78,466	71,432	63,538	66,213	72,971	68,609	421,229
CHAMPAGNOLLE:							
Daily average	1,339	1,241	1,143	1,160	1,147	1,146	
Month	41,506	35,996	35,442	34,788	35,558	34,382	217,672
DORCHEAT:							
Daily average	1,087	904	1,416	918	1,165	1,132	
Month	33,698	26,211	43,901	27,547	36,103	33,953	201,413
EL DORADO:							
Daily average	1,698	1,637	1,661	1,690	1,744	1,752	
Month	52,635	47,466	51,489	50,702	54,078	52,548	308,918
FOUKE:							
Daily average	.....	.....	.....	.....	.....	126	
Month	.....	.....	.....	.....	.....	3,790	3,790
LEWISVILLE:							
Daily average	524	701	698	725	952	1,077	
Month	16,241	20,336	21,647	21,738	29,513	32,324	141,799
LISBON:							
Daily average	237	214	221	243	215	219	
Month	7,348	6,201	6,856	7,297	6,653	6,572	40,927
MAGNOLIA:							
Daily average	20,195	20,172	19,799	19,881	20,398	20,347	
Month	626,033	584,993	613,766	596,436	632,347	610,418	3,663,993
McKAMEY:							
Daily average	.....	.....	.....	.....	.....	101	
Month	.....	.....	.....	.....	.....	3,040	3,040
MILLER COUNTY:							
Daily average	241	283	285	282	294	287	
Month	7,476	8,212	8,823	8,463	9,111	8,618	50,703
NEVADA:							
Daily average	550	556	553	560	547	581	
Month	17,016	16,131	17,152	16,788	16,958	17,429	101,474
NICK SPRINGS:							
Daily average	.....	120	111	433	520	429	
Month	.....	3,480	3,446	12,997	16,108	12,877	48,908
RODESSA:							
Daily average	2,020	2,132	2,449	2,381	2,078	2,114	
Month	62,608	61,833	75,916	71,436	64,427	63,433	399,653
SCHULER:							
Daily average	18,558	18,404	18,505	18,576	18,502	18,478	
Month	575,309	533,716	573,653	557,267	573,565	554,348	3,367,858
SMACKOVER (Light):							
Daily average	1,822	1,729	1,706	1,778	1,755	1,751	
Month	56,483	50,136	52,891	53,347	54,393	52,519	319,769
SMACKOVER (Heavy):							
Daily average	14,000	13,602	13,854	13,861	13,723	13,742	
Month	433,988	394,463	429,471	415,836	425,422	412,252	2,511,432
STEPHENS:							
Daily average	528	525	522	534	536	529	
Month	16,377	15,213	16,183	16,016	16,621	15,873	96,283
TROY:							
Daily average	1,301	1,338	1,275	1,262	1,319	1,323	
Month	40,336	38,807	39,513	37,863	40,886	39,683	237,088
URBANA:							
Daily average	939	911	918	925	922	922	
Month	29,106	26,426	28,467	27,738	28,583	27,669	167,989
VILLAGE:							
Daily average	1,467	1,406	1,290	1,204	1,223	1,153	
Month	45,466	40,774	39,992	36,133	37,910	34,582	234,857
Daily average	69,820	69,151	69,378	69,876	71,727	72,023	
First 6 months 1940	2,164,415	2,005,379	2,150,632	2,096,291	2,223,539	2,160,685	12,800,941
First 6 months 1939	1,593,400	1,489,124	1,657,912	1,620,870	1,702,055	1,719,600	9,782,061
First 6 months 1938	1,293,475	1,315,300	1,580,225	1,620,990	1,317,500	1,380,600	8,508,090
First 6 months 1937	803,117	758,660	843,851	824,220	850,175	850,230	4,930,253
First 6 months 1936	935,115	858,313	925,815	895,830	928,419	894,930	5,439,422

partly oil and partly condensate from the gas cap. Drilling in the field has been retarded by cost of the deep tests and the limited production. Possibility of wider spacing rules in the field may bring further drilling later in 1940.

Fouke Discovery

The Standard Oil Co. of Louisiana opened new oil production in the Paluxy formation in Miller County for Arkansas' principal oil discovery this year. The No. 1 Sturgis first encountered oil shows in the Blossom sand, but failing to find commercial amounts drilled to the Paluxy, where a good oil sand was cored at 3,577-3,606 ft. The well was deepened to the Smackover lime, and failing to get deeper production, was plugged back and completed late in June in the Paluxy, for a good producer. No further tests had reached the pay in this field by the end of June, and the extent of the new discovery is unknown.

The new field, named Fouke for the nearby town of that name, has resulted in an increased interest in the faulted area running roughly northeast-southwest through Nevada, Lafayette, and Miller counties in Arkansas and into Cass County, Texas.

McKamie

The McKamie field, of Lafayette County, only Smackover lime discovery thus far in 1940, was discovered by Atlantic Refining Co. when they completed No. 1 Bodcaw Lumber Co. in June. The porous-lime section in this discovery well is exceeded in Arkansas only by that in the center of the major Magnolia field. The discovery well topped the porous lime at 9,097 ft. and what was termed a gas-oil contact at 9,122 ft. An electrical survey made of the hole shows a full section of 121 ft. in the porous lime of which approximately 100 ft. is apparently saturated with a high-gravity oil, overlain by a 21-foot gas cap. It is believed by some that the entire section may be gas, and that surface production is condensate. A bottom-hole pressure of 4,395 lb. tends to support this belief. It is still too early to predict McKamie's extent or type of production, but the thickness of the section in the discovery well indicates a major strike. No further drilling was under way in the field by the end of June.

New oil production was brought in at Nick Springs, in Union County, by Delta Drilling Co. and Fohs Oil Co. when the No. 1 C. T. Grace of the former operator was completed for 180 bbl. of oil and 120 bbl. of salt water. The field is unprorated, and initial production of 3,480 bbl. in February rose to a top of 16,108 bbl. in May, but salt-water trouble has hampered production.

Field Extensions

The first of 1940 found only two new fields in Arkansas, and no further discoveries of importance were made until June, thus field drilling continued at a minimum during the 6-month period. Atlanta, extended 1 mile to the east late in 1939, was further extended during 1940 to about 640 actual producing acres and defined on the north edge. Big Creek, a late 1939 gas discovery, has had no further development, and gas from the discovery well is being used in the Buckner field in blowing wells.

Magnolia received the bulk of the field drilling to the Smackover lime, but the field was well defined by the first of the year, and no further extensions were effected. The field, Arkansas' major flush producer, is nearing completion of the drilling program, as is the Schuler field in Union County.

North Louisiana

One discovery of importance stood out in the quiet 6-month period of drilling in North Louisiana. In March, Placid Oil Co.'s No. 9 Louisiana Central, located about 6 miles east of the Urania field, La Salle Parish, was completed in a Wilcox sand for 288 bbl. daily. The discovery is unusual, because production is coming from a sand 640 ft. below the top of the Wilcox formation, the first such discovery, since all previous production has been from sands near the top of the formation.

Subsequent drilling, principally by Placid Oil Co. and Arkansas Fuel Oil Co., who hold nearly all acreage in the area, has resulted in the completion of 16 oil wells and 2 gas wells. Fifteen oil wells are grouped in the immediate vicinity of the discovery, but two outpost

NORTH LOUISIANA

Summary of Wells Completed First Half of 1940

Parish—	Comp.	Prod.	Dry	Gas*
Bienville	3	0	1	2
Bossier	12	1,350	2	1
Caddo, Rodessa	3	735	0	0
Caddo, other	164	11,338	19	3
Caldwell	2	0	2	0
Claiborne	3	890	1	0
De Soto	3	150	2	0
Grant	3	95	1	0
La Salle	24	3,680	2	2
Madison	2	0	2	0
Morehouse	6	0	0	6
Natchitoches	1	0	1	0
Red River	1	0	1	0
Sabine	24	500	13	0
Tensas	1	0	1	0
Union	22	0	0	22
Webster	14	4,588	2	0
West Carroll	1	0	1	0
Total	289	23,326	51	36

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	46	3,385	16	7
February	34	1,850	5	7
March	56	5,081	7	5
April	45	4,770	7	3
May	51	4,110	7	6
June	57	4,130	9	8
First half 1940	289	23,326	51	36
First half 1939	265	40,295	86	35
Difference	24	16,869	35	1

*Gas production: Bienville, 103,050,000 cu. ft.; Bossier Parish, 210,000,000; Caddo, other, 3,000,000; La Salle Parish, 40,000,000; Morehouse, 13,362,000; Union, 40,576,000.

ARKANSAS

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas*
Arkansas	1	0	1	0
Calhoun	1	0	1	0
Clark	2	0	2	0
Columbia	41	15,305	5	0
Craighead	1	0	1	0
Howard	2	0	2	0
Lafayette	5	775	1	0
Little River	1	0	1	0
Lonoke	1	0	1	0
Miller, Rodessa	4	325	0	0
Miller, other	3	790	2	0
Nevada	4	50	1	0
Ouachita	3	300	1	0
Sevier	1	0	1	0
Union	19	1,770	8	1
Total	89	19,315	28	1

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	15	2,745	5	0
February	12	3,920	3	0
March	19	3,225	7	0
April	16	3,780	4	1
May	15	3,625	4	0
June	12	2,020	5	0
First half 1940	89	19,315	28	1
First half 1939	121	44,300	34	1
Difference	32	24,985	6	0

*Gas production: Union County, 1,000,000 cu. ft.

NORTH LOUISIANA

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
BELLEVUE:							
Daily average	470	492	474	476	473	481	
Month	14,558	14,273	14,691	14,286	14,672	14,418	86,898
CADDO (Light):							
Daily average	5,173	5,150	5,162	5,209	5,241	5,285	
Month	160,372	149,338	160,023	156,266	162,476	157,559	946,034
CADDO (Heavy):							
Daily average	2,281	2,198	2,165	2,192	2,129	2,128	
Month	70,716	63,747	67,103	65,763	65,996	63,832	397,157
CONVERSE:							
Daily average	504	566	498	550	547	538	
Month	15,621	16,421	15,447	16,488	16,958	16,143	97,078
COTTON VALLEY (Heavy):							
Daily average	4	6	.....	10	12	11	
Month	121	181	.....	288	373	324	1,287
COTTON VALLEY (Light):							
Daily average	3,637	3,324	3,366	3,573	2,965	3,269	
Month	112,748	96,391	104,351	107,197	91,903	98,083	610,673
COTTON VALLEY (Distillate):							
Daily average	3,441	4,223	4,205	4,367	4,089	4,150	
Month	106,676	122,472	130,343	131,013	126,756	124,502	741,762
COTTON VALLEY (Lower Marine):							
Daily average	7,173	6,967	7,406	7,580	7,529	7,239	
Month	222,360	202,036	229,584	227,402	233,413	217,179	1,331,974
CROSS LAKE (Shreveport):							
Daily average	5,162	5,014	4,401	5,113	5,040	5,001	
Month	160,023	145,401	136,436	153,397	156,228	150,028	901,513
DE SOTO AND RED RIVER:							
Daily average	1,085	977	969	961	1,023	1,050	
Month	33,623	28,338	30,036	28,836	31,722	31,503	184,058
ELM GROVE:							
Daily average	308	285	292	294	281	294	
Month	9,557	8,253	9,053	8,816	8,716	8,834	53,229
HAYNESVILLE:							
Daily average	2,661	2,743	2,705	2,792	2,644	2,709	
Month	82,496	79,552	83,843	83,763	81,961	81,267	492,882
HOLLY:							
Daily average	64	56	58	65	57	54	
Month	1,981	1,631	1,807	1,938	1,768	1,634	10,759
HOMER:							
Daily average	2,667	2,739	2,781	2,883	2,850	2,847	
Month	82,678	79,426	86,216	86,497	88,338	85,413	508,568
LISBON:							
Daily average	5,320	5,103	5,604	4,566	5,068	4,806	
Month	164,908	148,108	173,721	136,986	157,117	144,178	925,018
OLLA:							
Daily average	.....	.....	.....	239	1,081	1,870	
Month	.....	.....	.....	7,166	33,516	56,114	96,796
PLEASANT HILL:							
Daily average	86	108	90	93	84	90	
Month	2,671	3,137	2,778	2,913	2,601	2,687	16,787
RODESSA:							
Daily average	20,739	21,816	20,288	20,940	19,288	19,692	
Month	642,906	632,671	628,937	628,188	598,053	590,758	3,721,513
SAREPTA-CARTERVILLE AND SHONGALOO:							
Daily average	317	369	366	353	335	338	
Month	9,828	10,696	11,351	10,597	10,373	10,143	62,988
SLIGO:							
Daily average	1,700	1,717	1,864	1,971	2,153	2,067	
Month	52,688	49,798	57,781	59,136	66,752	62,004	348,159
SUGAR CREEK:							
Daily average	443	665	717	799	826	644	
Month	13,742	19,273	22,228	23,966	25,611	19,317	124,137
URANIA:							
Daily average	2,471	2,083	2,825	2,857	2,414	2,549	
Month	76,606	60,412	87,563	85,713	74,831	76,468	461,593
ZWOLLE:							
Daily average	1,859	2,041	1,888	1,890	1,722	1,778	
Month	57,626	59,196	58,537	56,688	53,383	53,348	388,778
Daily average	67,565	68,646	68,123	69,777	67,823	68,858	
First 6 months 1940	2,094,505	1,990,751	2,111,829	2,093,303	2,103,517	2,065,736	12,459,641
First 6 months 1939	2,252,925	2,027,564	2,264,767	2,274,510	2,241,114	2,195,880	13,256,760
First 6 months 1938	2,474,017	2,199,008	2,426,215	2,374,830	2,473,645	2,381,070	14,328,785
First 6 months 1937	2,450,860	1,963,220	2,157,259	2,169,090	2,397,664	2,489,310	13,627,403
First 6 months 1936	1,566,554	1,757,603	1,961,959	1,902,420	2,565,219	2,316,510	12,070,265

MISSISSIPPI

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
PICKENS:							
Daily average	.....	.....	.....	229	761	951	
Month	.....	.....	.....	6,689	23,581	28,522	58,792
TINSLEY:							
Daily average	3,477	6,504	7,550	7,285	7,918	9,392	
Month	107,776	188,622	234,052	218,566	245,466	281,763	1,276,245
Daily average	3,477	6,504	6,550	7,514	8,679	10,343	
First 6 months 1940	107,776	188,622	234,052	225,255	269,047	310,285	1,335,037

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tests have been completed which may constitute major extensions to the field proper.

About 2½ miles south of the field, Placid Oil Co. opened new gas production in No. 16 Louisiana Central, and later completed an oil well in a south-offset position to the outpost gasser. Late in June, Placid Oil Co. brought in No. 17 Louisiana Central as a gas well, located about 4 miles north of oil production.

Drilling at the close of June was very active in the Olla district with rigs in offset, edge and inside locations in the field, and several operations in outpost locations from the main producing area.

Except for Olla, North Louisiana remained quiet during the first half of the year. Drilling volume in the shallow Caddo field increased, and Caddo Parish accounted for 167 of the 289 tests drilled in the district.

Deep tests in the Elm Grove, Pine Island and Monroe fields proved failures this year, but deep wildcatting continues. A show of oil in a shallow Woodbine test northwest of Vivian, Caddo Parish, failed to make a producer. Cotton Valley, which will be unitized soon for a field-wide recycling project, saw little drilling, mostly in the oil sections of the "D" and Bodcaw sands of the lower Marine of Cotton Valley formation, along the south and southeast edges of the field.

East Texas Border

With the decline in drilling in the Rodessa extension in Cass County and the Jefferson-Lodi branches of the field in Marion County, the border counties of East Texas remained quiet during the first half of 1940. Principal drilling was in the Smithland and Caddo pools, shallow fields in Marion County. Two important wildcats were drilled in Harrison County near Hallsville, and two tests were drilled in Cass County, but none found production.

Prospects for Second Half Year

Mississippi is expected to continue leading the wildcatting areas, as drilling obligations and hundreds of assembled blocks call for further tests during 1940. A continuation of the current volume of drilling may be expected for several months, and an acceleration of the activity, provided new discoveries are brought in.

Wildcat activity will continue to center in the Lower Cretaceous area of West Central Mississippi for several months to come, although activity will not be restricted to that section. The Paleozoic prospects of northeastern Mississippi and northwestern Alabama may receive added play, particularly if success is met in any of the current wildcats in that sector. Coastal Mississippi and the east central district will continue to see drilling. Altogether, it may be safely estimated that 40 or 50 wildcats will be drilled in the state, granting that no further discoveries of importance are made during that time.

Alabama may be expected to share a large part of the wildcatting during the second half of 1940, with activity probably restricted to the western part of the state. No indication of a marked increase in wildcatting is seen in Georgia or Florida.

South Arkansas offers several geophysical prospects in the Smackover lime to be drilled during 1940, and

(Continued on Page 128)

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MISSISSIPPI

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas
Attala	1	0	1	0
Choctaw	1	0	1	0
Clarke	1	0	1	0
Copiah	1	0	1	0
Hinds	1	0	1	0
Holmes	7	0	7	0
Humphreys	3	0	3	0
Issequena	1	0	1	0
Jefferson Davis	1	0	1	0
Leflore	1	0	1	0
Madison	4	0	4	0
Monroe	1	0	1	0
Scott	2	0	2	0
Sharkey	3	0	3	0
Simpson	1	0	1	0
Stone	1	0	1	0
Tallahatchie	1	0	1	0
Warren	1	0	1	0
Wayne	1	0	1	0
Yalobusha	1	0	1	0
Yazoo	70	37,385	14	0
Total	104	37,385	48	0

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	13	5,210	4	0
February	8	4,070	2	0
March	12	5,385	4	0
April	24	9,795	11	0
May	30	6,935	18	0
June	17	5,990	9	0
First half 1940	104	37,385	48	0
First half 1939	5	0	5	0
Difference	99	37,385	43	0

EAST BORDER TEXAS

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas*
Cass	2	0	2	0
Harrison	4	0	3	1
Marion, Rodessa	3	215	0	2
Marion, other	20	620	7	0
Shelby	1	0	0	1
Total	30	835	12	4

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	2	0	1	1
February	5	20	3	0
March	6	375	1	0
April	3	50	0	1
May	6	225	3	1
June	8	165	4	1
First half 1940	30	835	12	4
First half 1939	29	6,480	6	3
Difference	1	5,645	6	1

*Gas production: Harrison County, 15,840,000 cu. ft.; Marion-Rodessa, 30,750,000 cu. ft.; Shelby County, 88,000 cu. ft.

ALABAMA

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas
Choctaw	1	0	1	0
Greene	1	0	1	0
Total	2	0	2	0

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
June	2	0	2	0
First half 1940	2	0	2	0
First half 1939	1	0	1	0
Difference	1	0	1	0

FLORIDA

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas
Nassau	1	0	1	0
Total	1	0	1	0

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
May	1	0	1	0
First half 1940	1	0	1	0
First half 1939	2	0	2	0
Difference	1	0	1	0

Georgia

No completions in Georgia during first half 1940.

Semiannual Review

ROCKY MOUNTAIN PRODUCTION UP; FEW NEW DISCOVERIES

By
T. R. INGRAM

Wyoming had three discoveries, one being the West Ferris pool in Carbon County, in a deeper pay, by the Sinclair-Wyoming Oil Co.; a new producing horizon on Cole Creek, in Natrona County, by the General Petroleum Corp., and a small pool of undetermined possibilities 2 miles northwest of the LaBarge field, in Sublette County, by the North La Barge Oil Co. The Lance Creek field had another extension of the Sundance horizon, several dry holes which limited the area of the field, and a slight extension of the Leo sand pay. The Rock River field had a slight extension of the Sundance horizon in a well drilled by the Ohio Oil Co.

Lance Creek had 35 wells drilled to completion, of which four were dry holes. Exploratory work on the east side of the field was practically at a standstill following an action filed by the secretary of the interior contesting titles to some acreage under the old placer mining laws. Before this took place, however, the Ohio Oil Co. and the Continental Oil Co. each drilled a Sundance sand producer which proved an important extension. In January Continental's No. 3 Rodeo OPC-4, SE NE NE Section 35-36n-65w, was completed in the Sundance at 4,315 ft. for 168 bbl. a day. In April, Ohio's No. 8 State-Lamb, NW NW NW Section 36, was rated at 70 bbl. an hour from the Sundance at 4,240 ft., total depth. This well is a half mile east of the nearest Sundance sand well completed in 1938 and nearly 2 miles northeast of the nearest completed test prior to the 1938 extension, and the most easterly well in the field. These wells are on a direct northeast trend toward Continental's No. 1 Leach, in East Lance Creek, 3 miles away, which was completed as a gasser several years ago.

Several locations were proved up in outpost wells in the Leo horizon around the structure through progressive drilling, all of which were in territory that was expected to be productive. One of these was Ohio Oil Co.'s No. 4 Cash-1, NW NE SW Section 4-35n-65w, which was completed in February for 78 bbl. an hour at 5,499 ft., total depth, from the Leo sand. Location is a little less than a half mile from the nearest producers on the north and west. The only outside well on the southwest was Minnelusa Oil Corp.'s No. 1-B Joss, NE SW NW Section 7-35n-65w, which proved up about 40 acres, making 2,160 bbl. first 24 hours through tubing from the Leo sand at 5,423-39 ft.

Two wells drilled on the northwest flank apparently ran into a faulted condition and were abandoned. They marked the limits of production in that direction. Both were west offsets to good producers. These were Argo Oil Co.'s No. 1 Ong, SE SE SW Section 31-36n-65w, which went to 5,653 ft. without picking up the Leo sand, and the other was A. B. Cobb's No. 5 Novick, which was plugged and abandoned at 5,601 ft. Last named went from the red beds into black shale and bentonite at 5,623 ft., indicating that it was located in an underthrust fault block.

The limits of the pool in the Leo and Joss sands on the north were defined in Ohio Oil Co.'s No. 6 Agnes Rohlff, SE NW NE Section 32-36n-65w, which was abandoned in the Joss sand at 5,739 ft.

The Cole Creek discovery in a new horizon was made in General Petroleum Corp.'s No. 1-21-G, NW NW NW Section 21-35n-77w, in May. This well, located three-fourths of a mile northwest of the discovery made in 1938 in the Lakota sand, was drilled to that horizon and to a total depth of 8,050 ft., in the Morrison. It was a failure in these horizons and was plugged back and completed in the Shannon sand at 4,530-70 ft. and averaged 350 bbl. daily on an 8-day pumping test. The company has drilled three widely spaced wells on the structure to the deeper horizons. All three of them showed saturation in the Shannon on the way down, but No. 1-21-G was the only one tested in that formation. Cole Creek lies midway between the Salt Creek and Big Muddy fields, both of which showed some Shannon sand production. The indications point to the horizon being an important producer and the company will drill a number of wells to the Shannon which will serve not only to produce the new pay, but will yield important structural information to guide future drilling to the deeper horizons.

The discovery in a deeper pay on the West Ferris structure in Carbon County was made in March in Sinclair-Wyoming Oil Co.'s No. 4-E, C SE SW Section 29-26n-87w. The field produces gas in the Dakota and Sundance, but no test had been drilled previously to the underlying Tensleep of Pennsylvanian age. It had the top of the Tensleep at 4,272 ft., and was drilled to 4,315 ft. Water was encountered in the basal part of the sand and the hole was plugged back to 4,293 ft. and flowed 54 bbl. per day through the tubing, the oil testing 42 gravity. It had the Sundance sand at 2,546-2,650 ft. The field lies just to the east of the Mahoney dome, which has production in the Tensleep as well as oil and gas in upper horizons.

The other discovery was in Sublette County, in western Wyoming, in North La Barge Oil Co.'s No. 1 Government, SW NE SE Section 8-27n-113w, 2 miles northwest of the LaBarge field. It was at first thought this was an extension of the field, but developments indicate that it is a separate pool in a fault block. It had a sand in the Almy shale at 1,830-2,050 ft. which swabbed 25 bbl. per day of 43-gravity light oil. The development has not progressed sufficiently to predict the size and extent of the discovery.

The extension of the Sundance horizon in the Rock River field added one location on the southeast in

WYOMING

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
SALT CREEK:							
Daily average	14,533	14,236	14,019	14,630	14,564	15,060	
Month	450,576	412,864	434,595	538,896	451,483	451,800	2,640,214
BADGER BASIN:							
Daily average	168	242	240	242	240	240	
Month	5,200	7,018	7,440	7,260	7,440	7,200	41,558
BIG MUDDY:							
Daily average	1,153	1,176	1,199	1,184	1,172	1,173	
Month	35,753	34,104	37,163	35,532	36,328	35,184	214,064
BLACK MOUNTAIN:							
Daily average	65	250	200	200	200	200	
Month	2,000	7,250	6,200	6,000	6,200	6,000	33,650
BYRON:							
Daily average	2,477	2,243	3,586	54	4,087	2,483	
Month	76,781	65,042	111,173	1,632	126,705	74,500	455,833
COLE CREEK:							
Daily average	176	146	135	149	381	303	
Month	5,447	4,242	4,182	4,463	11,813	9,090	39,237
DALLAS-DERBY:							
Daily average	465	456	403	400	409	401	
Month	14,436	13,224	12,490	12,000	12,689	12,210	77,049
ELK BASIN:							
Daily average	665	666	607	641	295	550	
Month	20,598	19,325	18,806	19,233	9,141	16,500	103,603
FRANNIE:							
Daily average	1,708	1,820	2,599	2,995	2,263	2,513	
Month	52,950	52,798	80,570	89,797	70,164	75,390	421,669
GARLAND:							
Daily average	2,748	3,784	3,762	3,458	2,964	3,360	
Month	85,188	109,748	116,610	103,732	91,895	100,800	607,973
GRASS CREEK:							
Daily average	1,723	1,729	1,640	1,801	635	1,446	
Month	53,399	50,131	50,820	54,033	19,675	43,380	271,438
HUDSON:							
Daily average	236	228	230	228	292	240	
Month	7,317	6,606	7,128	6,829	9,068	7,200	44,148
LABARGE:							
Daily average	1,158	1,061	1,105	1,104	1,269	1,393	
Month	35,914	30,750	34,267	33,119	39,303	41,990	215,143
LANCE CREEK:							
Daily average	24,047	22,952	23,309	23,301	24,464	24,870	
Month	745,466	665,592	722,594	699,034	758,378	746,100	4,337,164
LOST SOLDIER:							
Daily average	1,700	1,790	1,937	2,106	2,195	1,737	
Month	52,717	51,903	60,054	63,176	68,051	58,110	354,011
MULE CREEK:							
Daily average	200	200	237	200	200	200	
Month	6,200	5,800	7,361	6,000	6,200	6,000	37,561
MAHONEY DOME:							
Daily average	304	318	296	324	308	260	
Month	9,428	9,209	9,165	9,731	9,544	7,800	54,877
BIG MEDICINE BOW:							
Daily average	783	800	869	755	729	740	
Month	24,280	23,191	26,929	22,648	22,586	22,200	141,834
OREGON BASIN:							
Daily average	3,753	3,190	3,996	4,330	7,193	6,237	
Month	116,351	92,491	123,881	129,902	222,987	187,110	872,722
OSAGE:							
Daily average	600	602	600	600	600	600	
Month	18,608	17,400	18,612	18,000	18,600	18,000	109,220
QUEALY DOME:							
Daily average	594	598	507	494	467	473	
Month	18,416	17,346	15,727	14,820	14,490	14,190	94,989
ROCK RIVER:							
Daily average	2,567	2,571	2,570	2,525	2,585	2,513	
Month	79,571	74,564	79,660	75,757	77,552	75,390	462,494
WERTZ:							
Daily average	3,964	2,448	1,934	1,993	1,931	1,950	
Month	122,888	71,006	59,952	59,781	59,851	58,500	431,978
HAMILTON DOME:							
Daily average	.....	250	.....	.....	.....	987	
Month	.....	7,250	.....	.....	.....	29,610	36,860
MISCELLANEOUS:							
Daily average	211	308	350	362	396	320	
Month	6,539	8,919	10,846	10,856	12,278	9,600	59,038
Daily average	65,998	64,060	66,330	64,074	69,756	70,455	
First 6 months 1940	2,046,023	1,857,773	2,056,225	1,922,231	2,162,421	2,113,654	12,158,327
First 6 months 1939	1,460,446	1,359,077	1,699,880	1,672,575	1,794,812	1,773,975	9,760,765
First 6 months 1938	1,507,003	1,303,197	1,470,861	1,541,085	1,572,215	1,629,946	9,024,307
First 6 months 1937	1,512,926	1,520,217	1,760,362	1,712,305	1,718,343	1,608,141	9,832,294
First 6 months 1936	1,062,556	972,486	1,153,448	1,081,830	1,124,370	1,059,420	6,454,110

Miscellaneous fields include Cody dome, 11,230 bbl.; Dewey dome, 1,820 bbl.; Dutton Creek, 7,338 bbl.; East Mahoney, 6,220 bbl.; Iron Creek, 3,313 bbl.; Teapot, 2,693 bbl.; Warm Springs, 13,345 bbl.; Hidden dome, 12,529 bbl.; total, 59,038 bbl.

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Ohio Oil Co.'s No. 15 Harrison & Cooper, SE NE NW Section 2-19n-78w. It is northeast of a dry hole and a southwest offset to a producer. It made 792 bbl. per day initial on the pump at 3,327 ft., total depth. Top of the pay was at 3,280 ft.

WYOMING

Summary of Wells Completed First Half 1940

County—	Comp.	Prod.	Dry	Gas
Big Horn	2	100	0	1
Carbon	6	112	2	1
Converse	1	0	1	0
Fremont	3	18	2	0
Hot Springs	1	0	1	0
Natrona	1	350	0	0
Niobrara	35	43,177	4	0
Park	4	2,525	2	0
Sublette	9	727	1	1
Sweetwater	5	720	0	0
Weston	7	86	3	0
Total first half 1940	74	47,815	16	3

Completions by Months

	Comp.	Prod.	Dry	Gas
January	17	5,349	7	2
February	10	6,594	1	1
March	13	16,235	2	0
April	12	6,505	1	0
May	12	8,612	3	0
June	10	4,520	2	0
Total	74	47,815	16	3
Total first half 1939	46	28,703	16	0
Difference	28	19,112	0	3

MONTANA

Montana failed to score any discoveries or important extensions of existing pools, although the number of completions went ahead of the same period last year. Drilling was confined mostly to the Cut Bank and Kevin-Sunburst fields and all of the new production developed came from them. There was a slight extension of the Cut Bank field on the west side in A. B. Cobb's No. 6 Walberger, SE SW SE Section 33-35n-6w, which swabbed and flowed 45 bbl. first 12 hours from the Cut Bank main pay at 2,795-2,812 ft. It is a little more than half a mile west of the nearest producer. It was drilled with a slim-hole rotary to the top of the sand and completed with a spudder so as to avoid any danger of mudding off the sand. Last year there was considerable drilling to the southeast of the town of Cut Bank in Sections 17, 18, 19, 20 and 21-33n-5w, where some good producers were completed. This year the area was connected up with the South Cut Bank pool by progressive drilling, although there were no additional reserves proven up as the territory was included in last year's estimates.

MONTANA

Summary of Wells Completed First Half 1940

County—	Comp.	Prod.	Dry	Gas
Big Horn	1	0	0	1
Carbon	2	0	1	1
Fergus	2	0	1	1
Glacier	47	4,484	7	1
Hill	2	0	1	1
Toole	34	2,771	6	1
Total first half 1940	88	7,255	16	6

Completions by Months

	Comp.	Prod.	Dry	Gas
January	12	602	2	3
February	9	939	2	0
March	10	669	5	0
April	14	1,568	0	0
May	26	2,780	3	2
June	17	697	4	1
Total	88	7,255	16	6
Total first half 1939	77	5,144	16	7
Difference	11	2,111	0	1

International Refining Co. began taking increased quantities of crude from its connections in the Kevin-Sunburst field in May and as a result there has been a considerable increase in the number of drilling wells. Earlier in the year some good producers were completed in the field, remindful of the older days. Examples are Superior Petroleum Co.'s No. 3 Haugen, C

MONTANA

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
BORDER:							
Daily average	18	41	157	119	132	107	
Month	577	1,180	4,869	3,557	4,086	3,210	17,479
CAT CREEK:							
Daily average	476	517	520	524	479	493	
Month	14,738	15,008	16,119	15,722	14,859	14,790	91,236
CUT BANK:							
Daily average	10,587	10,609	9,984	10,582	10,685	10,617	
Month	328,204	307,659	309,485	317,453	331,242	318,510	1,912,553
DRY CREEK:							
Daily average	685	595	734	730	754	780	
Month	21,261	17,267	22,746	21,907	23,382	22,400	128,963
KEVIN-SUNBURST:							
Daily average	4,321	4,797	4,642	4,696	7,010	5,850	
Month	133,912	139,127	143,908	140,876	217,302	175,500	950,625
PONDERA:							
Daily average	801	756	776	695	861	780	
Month	24,818	21,923	24,057	20,802	26,698	22,400	140,698
Daily average	16,887	17,316	16,812	17,344	19,921	18,897	
First 6 months 1940	523,510	502,164	521,184	520,317	617,569	556,810	3,241,554
First 6 months 1939	430,568	390,738	433,619	474,606	504,260	477,719	2,711,510
First 6 months 1938	368,053	359,579	399,519	441,399	417,352	438,698	2,424,600
First 6 months 1937	413,728	413,356	484,552	548,209	560,824	540,559	2,961,228
First 6 months 1936	369,148	295,191	482,391	488,100	532,053	516,660	2,683,543

COLORADO

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
FLORENCE:							
Daily average	102	186	191	155	152	198	
Month	3,172	5,403	5,933	4,635	4,727	5,940	29,810
FORT COLLINS:							
Daily average	171	189	164	158	133	135	
Month	5,314	5,494	5,077	4,737	4,115	4,050	28,787
ILES DOME:							
Daily average	1,848	1,804	1,686	1,642	1,468	1,509	
Month	57,289	52,290	52,255	49,266	45,521	45,274	301,893
HIAWATHA:							
Daily average	.....	173	173	173	162	165	
Month	.....	5,006	5,352	5,207	5,030	4,950	25,545
MOFFAT:							
Daily average	293	302	279	293	290	275	
Month	9,092	8,753	8,651	8,803	8,985	8,250	52,534
GREASEWOOD:							
Daily average	31	16	27	19	33	25	
Month	974	455	849	565	1,016	750	4,609
PRICE:							
Daily average	507	605	330	145	748	445	
Month	15,725	17,537	10,222	4,356	23,194	13,450	84,484
RANGELY:							
Daily average	87	81	64	73	90	160	
Month	2,688	2,348	1,988	2,179	2,803	4,800	16,806
TOW CREEK:							
Daily average	148	151	110	158	146	125	
Month	4,581	4,371	3,417	4,742	4,517	3,750	25,378
WELLINGTON:							
Daily average	192	215	190	209	202	215	
Month	5,932	6,235	5,888	6,257	6,254	6,450	37,016
WILSON CREEK:							
Daily average	537	633	655	636	584	610	
Month	16,621	18,359	20,291	19,097	18,102	18,312	110,782
Daily average	3,916	4,353	3,868	3,661	4,008	3,866	
First 6 months 1940	121,388	126,251	119,923	109,842	124,264	115,976	717,644
First 6 months 1939	123,385	98,421	113,825	111,259	124,514	121,729	693,133
First 6 months 1938	129,758	105,065	100,193	112,971	114,757	107,281	670,025
First 6 months 1937	103,705	115,079	138,643	131,611	135,891	136,658	761,587
First 6 months 1936	102,827	111,012	131,502	154,860	149,978	143,760	793,939

NE NE Section 11-35n-3w, which flowed 410 bbl. first 24 hours from a break in the lime at 1,854-60 ft.; Big West Oil Co.'s No. 2 Ellingson, CWL SE SW Section 14-35n-3w, which barely hit the contact at 1,720 ft. when it went over the top and made 30 bbl. an hour initially after being connected up, and Fulton Petroleum Co.'s No. 4 Thompson, SW NE Section 28-35n-3w, which was dry in the contact, and had only a show 27 ft. in the lime, but after acidizing with 500 gal., it was turned into a 250-bbl. well.

UTAH

Utah had only one well drilled to completion, and this proved up an extension of the developed gas area in the Clay Basin field in Daggett County, which is operated by the Mountain Fuel Supply Co. This was the company's No. 4 Murphy, SW SE SW Section 21-3n-24e, which was drilled to the Dakota at 5,640-43 ft. last year and then shut down for the winter after cementing pipe. It was opened up in April to drill deeper into the sand, but showed up so favorably it was completed without additional drilling for 6,826,000 cu. ft. of gas per day. It is located three-fourths of a mile west and a little north of No. 1 Louzur and the same distance southeast of No. 1 Smith.

UTAH

Summary of Wells Completed First Half 1940

County—	Comp.	Prod.	Dry	Gas
Daggett	1	0	0	1
Total first half 1940	1	0	0	1

Completions by Months

	Comp.	Prod.	Dry	Gas
January-March	0	0	0	0
April	1	0	0	1
May-June	0	0	0	0
Total	1	0	0	1
Total first half 1939	0	0	0	0
Difference	1	0	0	1

NORTHWEST NEW MEXICO

Summary of Wells Completed First Half 1940

County—	Comp.	Prod.	Dry	Gas
Bernalillo	1	0	1	0
McKinley	1	150	0	0
San Juan	9	84	4	3
San Miguel	1	0	1	0
Total first half 1940	12	234	6	3

Completions by Months

	Comp.	Prod.	Dry	Gas
January	2	0	1	1
February	2	59	1	0
March	3	25	1	1
April	1	0	0	1
May	1	0	1	0
June	3	150	2	0
Total	12	234	6	3
Total first half 1939	12	592	4	0
Difference	0	358	2	3

COLORADO

With only six wells drilled to completion, Colorado failed to score a discovery or important extension of existing pools. There were 36 wells drilling in the state at the end of June, this limited number being mostly wildcats being put down by the smaller companies and individuals with frequent shutdowns to finance additional operations. The major companies, while not entirely inactive, are giving their attention primarily to other districts where commitments require greater attention.

The principal development in Colorado was the drilling of the Mountain Fuel Supply Co.'s No. 5-A Wilson, SW SW NW Section 23-12n-100w, on the east side of the Hiawatha gas field in northern Moffat County. While it was in what was considered proven territory for oil, it was nevertheless an important test as it gave a more definite indication of what may be expected from the several upper sands in the Wasatch formation. This field for a number of years has been one of the Mountain Fuel Supply Co.'s principal sources of gas for its trunk line to Salt Lake City, Utah. The gas pressure has been declining during the past few years but prospects for oil have been improving.

Earlier plug-back and perforation jobs proved three shallow sands and in April 1940, Mountain Fuel Supply Co.'s No. 5-A Wilson was started as a northeast offset to No. 1 Kuykendall to obtain definite information regarding these sands. It was drilled to 2,592 ft. in the Wasatch formation of Tertiary age and cemented the 6⅝-in. at 2,565 ft. Three sands at 2,031-2,115 ft., 2,274-2,318 ft., and 2,482-2,512 ft. then were tested separately by swabbing and all three showed good saturation without water. The bridges then were drilled and the three sands were tested together through the perforated casing. They made 327 bbl. the first 24 hours and 327 bbl. the second 24 hours. The oil in the third sand in the Kuykendall well tested 48 gravity and is of paraffin base. With this production definitely proving the possibilities of the Wasatch at shallow depths, a number of structures in that area, both in Colorado and Wyoming undoubtedly will receive considerable attention in the near future. Elevation of No. 5-A Wilson is 7,175 ft.

One other important well drilled was the Texas Co.-California Co.'s No. 3 Unit, NE NE NE Section 27-3n-94w, on the Wilson Creek structure in Rio Blanco County. These companies, with the Texas Co. as the operator, made a discovery in the Morrison sand at 6,665-85 ft. in 1938, the well flowing 492 bbl. of 46-gravity paraffin-base oil in 24 hours through perforated casing. In 1939, their No. 2 Unit was drilled in the NW SE SW Section 27, a little more than a mile to the northwest, and produced 250 bbl. daily through the tubing from the Morrison. No. 3 Unit, 1¼ miles north and a little west of the discovery and a mile northeast of No. 2 Unit, was drilled to the Morrison at 6,333 ft. and found water in that horizon, topped at 5,897 ft. It limited the area in that formation on the north side and the companies then made a location for No. 4 Unit a mile to the south of the discovery to test out the pool this year in that direction.

COLORADO

Summary of Wells Completed First Half 1940

County—	Comp.	Prod.	Dry	Gas
Adams	1	0	1	0
Custer	1	0	1	0
Fremont	1	0	1	0
Larimer	1	0	1	0
Moffat	1	281	0	0
Rio Blanco	1	250	0	0
Total first half 1940	6	531	4	0

Completions by Months

	Comp.	Prod.	Dry	Gas
January	2	250	1	0
February	0	0	0	0
March	2	0	2	0
April	0	0	0	0
May	1	0	1	0
June	1	281	0	0
Total	6	531	4	0
Total first half 1939	11	390	8	1
Difference	5	141	4	1

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WILCOX TREND PRODUCTION FOUND IN SOUTHWEST TEXAS

By
F. L. SINGLETON

The extension of the Wilcox play to the old shallow Jackson shore-line trend, continuation of an active wildcatting campaign along the Frio-Vicksburg trend, and the opening of the first crude-oil production in several gas and distillate fields were the highlights of development in the Southwest Texas district during the first 6 months.

Drilling operations showed a slight decline, as a total of 1,164 wells were completed, compared to a total of 1,262 completed wells during the first half of 1939. Of this total 405 were dry holes and 37 were gas wells. Of the 15 pools opened practically all are in the early stages of development, and no decline in drilling activity is anticipated during the remainder of the year.

The search for Tertiary Wilcox production which heretofore had been confined to the upper Texas and coastal Louisiana regions was extended into the Jackson shore-line trend with the completion of Atlantic Refining Co.'s No. 1 Conwell in the Thomaston area, De Witt County. This well topped the Wilcox at 7,778 ft., and the formation was cored to a total depth of 8,518 ft. Five and one-half-inch casing was cemented at 8,291 ft., and the well was completed for a distillate producer by perforating casing at 7,855-85 ft.

Carrizo Sand Productive

Approximately 90 miles downdip from the above well, distillate production from the Carrizo sand was opened in the West Tuleta field, Bee County, by Mills Bennett Production Co., and Anderson-Prichard Oil Corp., while additional wells drilled as far south as Live Oak and Webb counties logged sufficient showings of oil and gas to cement casing for production test. The presence of Wilcox sand this far downdip, has enlarged the potentiality of this area, and the showing of the above mentioned wells resulted in a large scale geophysical program and several hundred thousand acres were taken under lease. Three deep tests located in La Salle, Webb and Live Oak counties are drilling, and locations for several more are proposed.

New fields continued to be added to the Jim Wells County sector of the Frio-Vicksburg trend. New pools opened include Orange Grove and Gallagher, while the Wade City distillate field received its first crude-oil production. The three areas are receiving an active drilling campaign, and recent extensions and new sand discoveries have marked them as important reserves.

Orange Grove was opened with the completion of Henshaw Brothers' No. 1 Blashke, completed in sand at 5,100-03 ft., for an initial production of 25 bbl. of oil per day, and 15 per cent salt water flowing through a 7/64-in. choke. The discovery well is generally conceded as being on the edge of the structure, as additional wells have been completed in a much thicker sand body, and are free of salt water.

In the northeast corner of the county, M. M. Miller & Sons opened the Gallagher field with the completion of No. 1 Gallagher which flowed 110 bbl. of 34.8-gravity oil per day through ⅛-in. choke. Production was obtained by perforating casing at 5,187-95 ft., and 5,198-5,207 ft. The same operators have reached the

(Continued on Page 125)

SOUTHWEST TEXAS
(Lower Gulf Coast)

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
AGUA DULCE:							
Daily average	551	520	375	285	2,053	2,307	
Month	17,081	9,276	11,638	8,538	63,643	69,210	179,386
ALFRED:							
Daily average	263	147	149	187	223	405	
Month	8,153	4,249	4,612	5,622	6,913	12,150	41,699
BEN BOLT:							
Daily average	1,371	1,203	2,507	3,015	2,785	2,253	
Month	42,501	34,885	77,705	90,451	86,335	67,590	399,467
BENTONVILLE:							
Daily average	1,092	1,238	1,302	1,211	1,050	1,645	
Month	33,852	35,912	40,364	36,319	32,550	49,350	228,347
CAESAR:							
Daily average	133	135	126	126	100	114	
Month	4,123	3,910	3,898	3,774	3,100	3,420	22,225
CLARA DRISCOLL:							
Daily average	1,740	1,855	1,913	1,871	1,439	1,118	
Month	53,940	53,791	59,311	56,137	44,609	33,540	301,328
COLETO CREEK:							
Daily average	251	385	350	329	323	315	
Month	7,781	11,167	10,834	9,878	10,013	9,450	59,123
DIRKS:							
Daily average	1,280	1,751	1,704	1,716	1,583	1,300	
Month	39,680	50,780	52,826	51,473	49,073	39,000	282,832
EAST PLACEDO:							
Daily average	375	358	363	379	530	564	
Month	11,625	10,383	11,257	11,370	16,430	16,920	77,985
EAST PREMONT:							
Daily average	441	441	447	450	367	339	
Month	13,671	12,788	13,882	13,498	11,377	10,170	75,386
EAST WHITE POINT:							
Daily average	9,545	8,447	12,081	9,044	8,138	7,637	
Month	295,895	244,955	374,501	271,327	252,278	229,110	1,668,066
FLOUR BLUFF:							
Daily average	4,163	4,219	4,131	3,929	3,473	2,832	
Month	129,053	22,342	128,053	117,867	107,663	84,960	589,938
GRETA:							
Daily average	4,144	4,276	4,243	4,116	3,614	3,455	
Month	128,464	123,996	131,530	123,479	112,034	103,650	723,153
HEYSER:							
Daily average	9,805	7,727	11,228	11,043	10,183	11,150	
Month	303,955	224,089	348,075	331,304	315,673	334,500	1,857,596
KEERAN:							
Daily average	780	754	709	693	858	727	
Month	24,180	21,853	21,990	20,802	26,598	21,810	137,233
FOX:							
Daily average	465	486	472	451	429	370	
Month	14,415	14,104	14,629	13,523	13,299	11,100	81,070
LA BLANCA:							
Daily average	418	366	340	419	320	319	
Month	12,958	10,618	10,537	12,576	9,920	9,570	66,179
LA ROSA:							
Daily average	4,668	3,755	4,991	5,197	4,629	3,493	
Month	144,708	108,888	154,712	155,916	143,499	104,790	812,513
LAS MESTENAS:							
Daily average	125	136	128	127	110	110	
Month	3,875	3,942	3,961	3,806	3,410	3,300	22,294
LUBY:							
Daily average	6,391	5,409	5,368	5,222	4,430	3,816	
Month	198,121	156,867	166,394	156,670	137,330	114,480	929,862
MAGNOLIA CITY:							
Daily average	274	213	344	459	223	289	
Month	8,494	6,189	10,649	13,757	6,913	8,670	54,672
McCAMPBELL:							
Daily average	10,054	8,965	11,250	10,757	9,736	8,445	
Month	311,674	260,569	348,742	322,732	301,816	253,350	1,798,883
McFADDIN:							
Daily average	2,144	1,955	2,033	2,078	2,169	2,182	
Month	66,464	56,700	63,027	62,352	67,239	65,460	381,242
MELON CREEK:							
Daily average	410	329	464	391	401	343	
Month	12,710	9,543	14,373	11,733	12,431	10,290	71,080
MIDWAY:							
Daily average	684	646	629	1,002	898	825	
Month	21,204	18,730	19,484	30,064	27,838	24,750	142,070
MINNIE BOCK:							
Daily average	981	844	1,380	1,013	1,020	951	
Month	30,411	24,487	42,823	30,364	31,620	28,530	188,235
NORTH AGUA DULCE:							
Daily average	98	65	55	68	105	86	
Month	3,038	1,895	1,691	2,040	3,255	2,580	14,499
NORTH PETTUS:							
Daily average	732	1,031	913	930	972	772	
Month	22,692	29,906	28,304	27,907	30,132	21,160	160,101

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SOUTHWEST TEXAS DISTRICT DISCOVERIES FIRST HALF OF 1940

Pool—	County	Company and farm name	Survey	Date of comp.	Production formation	Production depth	Initial production	No. wells June 30
Boyle	Starr	George Boyle's No. 1 E. B. Carruth	Santiago Lopez	June 2	Pettus	3,491-98	91 bbl. per day, 7/64 and ⅛-in. cks.	1
Day	Guadalupe	A. J. Hollifield's No. 1 D. M. Day	J. Hinds	February 23	Austin chk.	2,360-2,837	8 bbl. per hour, pumping	1
E. Flour Bluff	Nueces	Humble O. & R. Co.'s No. 1 State	Tract No. 30	May 20	Frio	6,790-6,800	177 bbl. per day, ⅛-in. ck.	1
Fagan	Refugio	C. L. Norsworthy's No. 1 Fox	J. Fagan	February 9	Frio	5,895-98	157 bbl. per day, 7/64-in. ck.	1
Gallagher	Jim Wells	M. M. Miller & Sons' No. 1 Gallagher	Casa Blanca	June 14	Frio-Vksbg.	5,187-5,207	110 bbl. per day, ⅛-in. ck.	1
Manila	Jim Hogg	Achning-Daubert's No. 1 Wood	Sabas de la Garza No. 82	June 14	Pettus	2,607-13	53 bbl. per day, 5/16-in. ck.	1
N. Keeran	Victoria	Barnsdall Oil Co.'s No. 1-A Keeran	M. De Leon	January 19	Frio	5,550-52	33 bbl. per day, ⅜-in. ck.	1
N. McFaddin	Victoria	Texas Gulf Prod. Co.'s No. 1 Kester	C. M. Creanor	May 24	Frio	5,103-05	15 bbl. dist. P.D., ¼ and ⅛-in. cks.	3
N. Rincon	Starr	Sun Oil Co.'s No. 1 Lehr	C.C.S.D.&R.G. N.G. 513	June 7	Frio-Vksbg.	4,100-54	15 bbl. per day, 5/16-in. ck.	1
Glen	Webb	Interstate Minerals' No. 46 Lopez	J. J. T. Wright	May 2	Mirando	2,173-85	1,440 bbl. per day, ½-in. ck.	6
Orange Grove	Jim Wells	Henshaw Bros.' No. 1 Blaschke	Casa Blanca	May 17	Frio-Vksbg.	5,100-03	87 bbl. per day, ⅛-in. ck.	6
St. Charles	Aransas	Continental Oil Co.'s No. 1 St. Charles	R. D. Blassman	January	Frio	9,335	Blowout	1
Terrell	Victoria	Colton & Colton's No. 1 Etta Terrell	J. P. Sideck	May 24	Vicksburg	5,275-85	75 bbl. per day, ⅛-in. ck.	1
Thomaston	De Witt	Atlantic Ref. Co.'s No. 1 Conwell	C. Lockhart	April 5	Wilcox	7,855-85	140 bbl. per day, ¼-in. ck.	1

sand on a second well, several hundred feet south of the discovery.

A new sand logged in the Rodney DeLange's No. 1-A McNeil, 1,300 ft. southeast of a distillate well in the Wade City field, converted this structure into an oil pool, resulting in an active drilling campaign. The well was completed in sand at 4,923-28 ft., and additional producers have been completed in another sand logged at intervals from 4,800 to 4,900 ft. At the end of June, 24 wells had been completed extending production over several hundred acres, and the structure is undefined in several directions.

Other gas or distillate fields receiving their first crude production included the Telferner and Victoria fields, Victoria County; East Mathis, San Patricio County, and the Robstown field, Nueces County.

SOUTHWEST TEXAS

Summary of Wells Completed First Half of 1940

Field—	Comp.	Prod.	Abd.	Gas
Adami	50	1,778	3	1
Adams	1	0	1	0
Agua Dulce	12	72	4	4
Alice	5	150	2	1
Alfred	1	0	1	0
Angelita	1	4	0	0
Benavides	4	0	4	0
Ben Bolt	28	6,244	3	0
Barbacoas	3	0	2	1
Bruni	3	6	2	0
Byersville	5	0	5	0
Bird Island	1	39	0	0
Blas Uribe	1	0	1	0
Boyle	1	91	0	0
Callihan	1	0	1	0
Chiltipin	3	0	3	0
Charco-Blanco	1	0	1	0
Chacon Lake	9	20	0	0
Carolina-Texas	1	10	0	0
Charco Redondo	4	0	4	0
Clara Driscoll	6	440	0	1
Carroll	1	0	1	0
Cedro Hill	34	793	3	2
Colorado	34	4,869	1	1
Comitas	4	58	0	0
Cedar Creek	1	0	1	0
Coleto Creek	1	60	0	0
Cologne	1	0	0	1
Dale	10	1,513	1	0
Darst Creek	7	928	0	0
Driscoll	7	1,094	0	0
Day	1	21	0	0
East Flour Bluff	1	177	0	0
East Mathis	2	37	1	0
East Placedo	1	51	0	0
East White Point	64	8,312	1	1
East Bruni	1	5	0	0
Escobas	16	243	5	1
Eckert	1	0	1	0
Elm Creek	15	58	5	0
East Telferner	1	0	1	0
Fagan	4	214	1	1
Flour Bluff	1	0	1	0
Fox	1	24	0	0
Fitzsimmons	2	158	0	0
Gallagher	1	110	0	0
Government Wells	3	0	3	0
Grayburg	1	0	1	0
Gutierrez	1	0	1	0
Glen	6	3,733	0	0
Heyser	15	2,017	1	0
Hayden	2	3	0	1
Hoffman	31	1,246	12	1
Jacob	0	0	0	0
Kelsey	23	1,847	5	1
Keeran	4	301	0	0
Lacoste	1	0	0	1
La Rosa	21	3,501	3	4
La Gloria	1	40	0	0
La Reforma	1	0	1	0
Longhorn	7	686	0	0
Luling	4	225	0	0
Las Animas	1	0	1	0
Larremore	1	0	1	0
Luby	2	80	1	0
Lost Mule	1	0	1	0
Manila	1	53	0	0
Minnie Bock	12	765	2	0
Margo	2	0	1	1
McCampbell	60	5,810	1	3
McFaddin	6	824	0	0
Mirando Valley	29	2,709	5	1
Midway	5	262	1	0
Muralla	3	67	2	0
Munson	4	63	2	0
Magnolia City	4	330	0	0
Manda	1	0	1	0
Mountain View	1	0	1	0
North Rincon	1	15	0	0
North Telferner	1	25	0	0
Northwest Odem	1	35	0	0
North Luby	1	76	0	0
North Dale	1	0	1	0
North Killam	1	0	1	0
North McFaddin	3	102	0	0
Oakville	6	834	2	0
Orange Grove	6	787	1	0
Peters	7	293	4	0
Piedre de Lumbre	3	101	1	1
Piedra Pintas	2	0	2	0
Premont	15	316	2	0
Pearsall	2	1,528	0	0
Plymouth	9	937	1	0
Placedo	3	288	0	0
Rancho Solo	10	1,250	3	0
Refugio	3	185	1	0
Reynolds	5	258	2	0
Rockdale	12	50	4	0
Richard King	5	394	1	0
Rincon	32	5,813	4	1
Ricaby	5	69	3	0
Robstown	2	144	1	0
Salt Flat	9	403	2	0
Samfordyce	4	362	1	0
Saxet	1	75	0	0
South Clara Driscoll	9	773	0	0
South Alfred	7	716	0	0

(Continued on Next Page)

SOUTHWEST TEXAS (Continued)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
OAKVILLE:							
Daily average	443	661	516	490	450	660	
Month	13,733	19,183	16,010	14,704	13,950	19,800	97,380
PETTUS:							
Daily average	343	463	423	458	454	414	
Month	10,633	13,421	13,116	13,731	14,074	12,420	77,395
PLACEDO:							
Daily average	5,213	5,274	5,041	4,998	4,921	4,800	
Month	161,603	152,941	156,312	149,930	152,551	144,000	917,337
PLUMMER:							
Daily average	152	120	110	106	115	110	
Month	4,712	3,466	3,398	3,185	3,565	3,300	21,626
PLYMOUTH:							
Daily average	11,491	7,412	12,230	8,796	7,685	8,526	
Month	356,221	214,953	379,154	263,893	238,235	255,780	1,708,236
PREMONT:							
Daily average	277	357	462	465	369	456	
Month	8,587	10,366	14,325	13,942	11,439	13,680	72,339
RAY:							
Daily average	145	212	210	209	199	162	
Month	4,495	6,140	6,500	6,255	6,169	4,860	34,419
REFUGIO:							
Daily average	5,908	6,082	5,970	6,110	4,830	4,190	
Month	183,148	176,368	185,081	183,299	149,730	125,700	1,003,326
REYNOLDS:							
Daily average	1,401	1,228	2,004	1,739	1,293	2,010	
Month	43,431	35,608	62,128	52,177	40,083	60,300	293,727
SAXET:							
Daily average	16,590	17,089	17,130	16,933	15,756	17,260	
Month	514,291	495,586	531,048	507,956	488,436	517,800	3,055,117
SAXET HEIGHTS:							
Daily average	678	750	883	604	816	800	
Month	21,018	21,747	27,376	18,133	25,296	24,000	137,570
SOUTH ALICE:							
Daily average	3,242	3,259	5,441	4,989	3,364	2,950	
Month	100,502	94,506	168,660	149,674	104,284	88,500	706,126
SOUTH BURNELL:							
Daily average	584	608	574	520	522	515	
Month	18,104	17,633	17,796	15,612	16,182	15,450	100,777
SOUTH CLARA DRISCOLL:							
Daily average	810	808	859	855	1,078	848	
Month	25,110	23,437	26,621	25,650	33,418	25,440	159,676
SOUTH SAXET:							
Daily average	279	277	299	280	245	206	
Month	8,649	8,046	9,268	8,401	7,595	6,180	48,139
STRATTON:							
Daily average	168	191	200	232	247	290	
Month	5,208	5,539	6,200	6,960	7,657	8,700	40,264
TAFT:							
Daily average	4,391	2,082	3,312	2,805	2,340	2,100	
Month	136,121	60,379	102,660	84,122	72,540	63,000	518,822
TOMOCONNOR:							
Daily average	11,349	19,592	19,738	19,224	16,696	19,713	
Month	351,819	568,164	611,899	577,044	517,576	591,390	3,217,852
TULETA:							
Daily average	186	184	170	196	166	150	
Month	5,760	5,340	5,257	5,879	5,146	4,500	31,882
VICTORIA:							
Daily average	13	15	95	254	201	307	
Month	403	433	2,947	7,607	6,231	9,210	26,831
WADE CITY:							
Daily average	16	15	16	7	789	1,400	
Month	496	435	496	204	24,459	42,000	68,090
WEST SAXET:							
Daily average	2,866	2,603	5,378	2,514	2,508	2,910	
Month	88,846	75,495	166,761	75,405	77,748	87,300	571,555
WHITE CREEK:							
Daily average	164	176	215	165	173	597	
Month	5,084	5,111	6,679	4,935	5,363	17,910	45,085
MISCELLANEOUS:							
Daily average	818	873	745	803	811	1,480	
March	25,358	25,320	23,098	24,080	25,142	31,440	154,438
Daily average	130,905	124,360	152,019	140,267	128,197	130,525	
First 6 months 1940	4,058,050	3,606,431	4,712,592	4,208,020	3,974,108	3,915,760	24,474,961
First 6 months 1939	3,982,074	3,668,980	4,390,776	4,166,280	4,121,295	3,633,240	23,962,585
First 6 months 1938	3,590,327	3,254,556	3,727,463	3,684,780	3,545,067	3,362,970	21,165,153
First 6 months 1937	3,139,680	3,283,392	3,869,699	3,655,650	3,960,312	3,744,420	21,653,153

Miscellaneous fields and their production (in bbl.) for the first 6 months of 1940 were: Angelita, 742; Bird Island, 2,447; Blucher, 1,220; Camada, 977 Cologne, 900; Dinero, 1,718; East Mathis, 2,408; East Telferner, 372; Fagan, 9,041; Foley, 3,242; Hord's Creek, 4,217; Kingsville, 8,015; La Gloria, 9,083; London, 6,929; Lucas, 10,153; McAllen, 3,192; McNeil, 11,092; Mercedes, 2,148; Normana, 4,819; North Keeran, 2,632; North Luby, 13,446; North McFaddin, 6,987; North Odem, 2,275; Orange Grove, 6,142; Port Lavaca, 92; Riverside, 13,554; Robstown, 12,695; Sarco, 788; Sinton, 2,259; Slick, 1,033; Strauch, 569; Tulsita, 1,929; Voss, 1,453; White Point, 4,699; East Flour Bluff, 1,170. Total production, 154,438 bbl.

San Antonio District

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
BRANYON:							
Daily average	1,100	1,080	1,066	1,078	1,085	1,047	
Month	34,100	31,320	33,046	32,340	33,635	31,410	195,851
BUCHANAN:							
Daily average	68	151	117	108	149	142	
Month	2,108	4,379	3,627	3,240	4,619	4,260	22,233
CHAPMAN:							
Daily average	164	209	208	185	194	186	
Month	5,084	6,067	6,456	5,551	6,014	5,580	34,752
DARST CREEK EXTENSION:							
Daily average	94	141	104	113	106	103	
Month	2,914	4,089	3,224	3,390	3,286	3,090	19,993
DALE:							
Daily average	231	271	241	205	399	370	
Month	7,161	7,859	7,471	6,150	12,369	11,100	52,110
DARST CREEK:							
Daily average	6,640	6,847	6,843	6,685	6,672	6,380	
Month	205,840	198,590	212,147	200,561	206,832	191,400	1,215,370
ECKERT:							
Daily average	107	111	105	99	92	91	
Month	3,317	3,219	3,255	2,970	2,852	2,730	18,343
HILBIG:							
Daily average	270	241	242	232	221	188	
Month	8,370	7,001	7,514	6,962	6,851	5,640	42,338
LULING:							
Daily average	6,573	6,565	6,696	6,446	5,981	5,966	
Month	203,763	190,414	207,545	193,380	185,411	178,980	1,159,493
LYTTON SPRINGS:							
Daily average	253	319	295	284	290	312	
Month	7,843	2,943	9,135	8,530	8,990	9,360	53,101
MINERVA-ROCKDALE:							
Daily average	119	236	215	229	225	220	
Month	3,689	6,849	6,661	6,867	6,975	6,600	37,641
NORTH DALE (BATEMAN):							
Daily average	65	100	96	79	104	101	
Month	2,015	2,900	2,980	2,370	3,224	3,030	16,519

(Continued on Next Page)

Field—	Comp.	Prod.	Abd.	Gas
Seven Sisters	5	135	1	2
Stratton	7	412	0	1
Sun	22	2,881	3	0
South Calliham	5	7	3	1
South Ricaby	3	82	1	0
Sejita	1	16	0	0
Sweden	1	22	0	0
Telferner	1	0	1	0
Thomaston	1	140	0	0
Thrall	2	0	2	0
Tarancahuas	20	2,862	4	0
Tomoconnor	12	7,440	0	0
Victoria	21	1,005	10	1
Volpe	23	1,830	6	0
Wade City	23	4,061	1	0
West Cole	8	209	2	0
White Creek	9	795	2	0
Whitsett	1	0	0	1
Miscellaneous	226	0	225	1
Total	1,164	89,867	405	37

Completions by Months

Month—	Comp.	Prod.	Abd.	Gas
January	199	15,478	66	8
February	182	14,003	63	4
March	193	12,241	71	7
April	187	12,666	75	4
May	220	19,437	71	5
June	183	16,042	59	9
First half 1940	1,164	89,867	405	37
First half 1939	1,262	118,658	358	35
Difference	98	28,791	47	2

South of Telferner

Sunray Oil Co. and Colton's No. 1 Mahon, just south of the Telferner gas field, was completed in the basal Oakville sand at 2,696-2,700 ft. for an initial production of 66 bbl. per day flowing through a 15/64-in. choke. Although the completion opened the way for additional activity, development has been confined to the one well. In the Victoria field, the completion of W. V. Hardin and others' No. 1 Bass, in a new sand at 3,036-40 ft., resulted in increased activity in that field, but development proved this sand to be limited to a small area, and the field is practically drilled up.

The East Mathis field, San Patricio County, received its first crude production with the completion of Seaboard Oil Co.'s No. 1 W. E. Lovett, completed in a new sand at 5,614-18 ft., for an initial production of 140 bbl. per day flowing through ½-in. choke. The

SOUTHWEST TEXAS—(San Antonio District, Continued)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
PEARSALL:							
Daily average	420	441	629	769	1,075	949	
Month	13,020	12,781	19,473	23,056	33,325	28,470	130,125
SALT FLAT:							
Daily average	3,743	4,546	4,548	4,492	4,678	4,630	
Month	116,033	131,868	140,981	134,752	145,018	138,900	807,552
SOMERSET:							
Daily average	537	703	511	513	553	548	
Month	16,647	20,387	15,841	15,390	17,143	16,440	101,848
VON ORMY:							
Daily average	102	117	109	110	118	204	
Month	3,162	3,407	3,375	3,300	3,658	6,120	23,022
MISCELLANEOUS:							
Daily average	669	651	795	723	762	731	
Month	20,739	18,874	24,644	21,812	23,622	21,930	131,621
Daily average	21,155	22,729	22,821	22,356	22,704	22,168	
First 6 months 1940	655,805	659,247	707,375	670,621	703,824	665,040	4,061,912
First 6 months 1939	740,466	656,516	759,376	778,260	812,324	712,410	4,459,352
First 6 months 1938	767,777	657,664	764,770	751,650	732,964	663,840	4,338,665
First 6 months 1937	711,946	634,900	714,395	695,940	846,300	796,170	4,399,651

Miscellaneous fields and their production for the first 6 months of 1940 include Alta Vista, 2,534 bbl.; Beyersville, 14,895 bbl.; Burdette Wells, 2,781 bbl.; Carroll, 4,139 bbl.; Cedar Creek, 9,210 bbl.; Chacon Lake, 6,124 bbl.; Day, 1,751 bbl.; Dunlap, 10,123 bbl.; Dunlay, 31 bbl.; Elm Creek, 3,586 bbl.; Gas Ridge, 1,268 bbl.; Iina, 2,476 bbl.; Kimbro, 598 bbl.; LaCoste, 674 bbl.; Larremore, 9,421 bbl.; Menda, 724 bbl.; Nash Creek, 853 bbl.; Red Rock, 150 bbl.; Riddle, 8,493 bbl.; Southton, 9,697 bbl.; Spiller, 1,092 bbl.; Staples, 182 bbl.; Tanglewood, 3,977 bbl.; Thrall, 13,503 bbl.; Walnut Creek, 1,070 bbl.; Yost, 5,880 bbl.; Zoboroski, 10,697 bbl.; Bee Creek, 5,692 bbl.; total, 131,621 bbl.

(Laredo District)

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos (bbl.)
ADAMI:							
Daily average	306	627	685	768	848	715	
Month	9,486	18,171	21,226	23,039	26,288	21,450	119,660
ALTA MESA:							
Daily average	383	407	892	1,082	925	772	
Month	11,873	11,797	27,647	32,452	28,675	23,160	135,604
AVIATOR:							
Daily average	278	336	279	307	312	276	
Month	8,618	9,736	8,659	9,221	9,672	8,280	54,186
BRUNI:							
Daily average	281	536	535	516	347	287	
Month	8,711	15,631	16,585	15,480	10,757	8,610	75,774
CALLIHAM:							
Daily average	188	197	144	167	187	172	
Month	5,828	5,717	4,465	5,018	5,797	5,160	31,985
CASA BLANCA:							
Daily average	291	334	297	296	277	264	
Month	9,021	9,686	9,202	8,880	8,587	7,920	53,296
CEDRO HILL:							
Daily average	274	260	359	373	434	450	
Month	8,494	7,540	11,124	11,190	13,454	13,500	65,302

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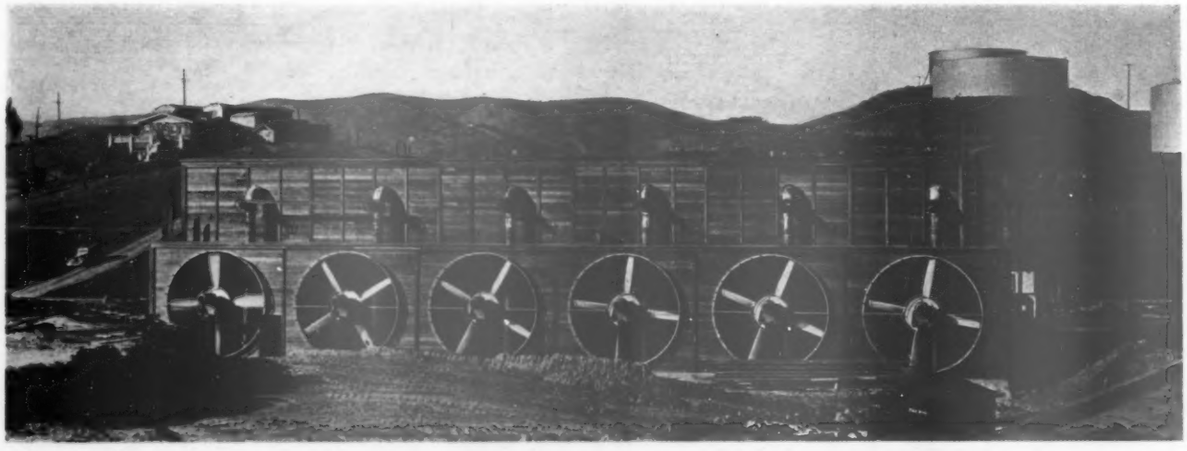

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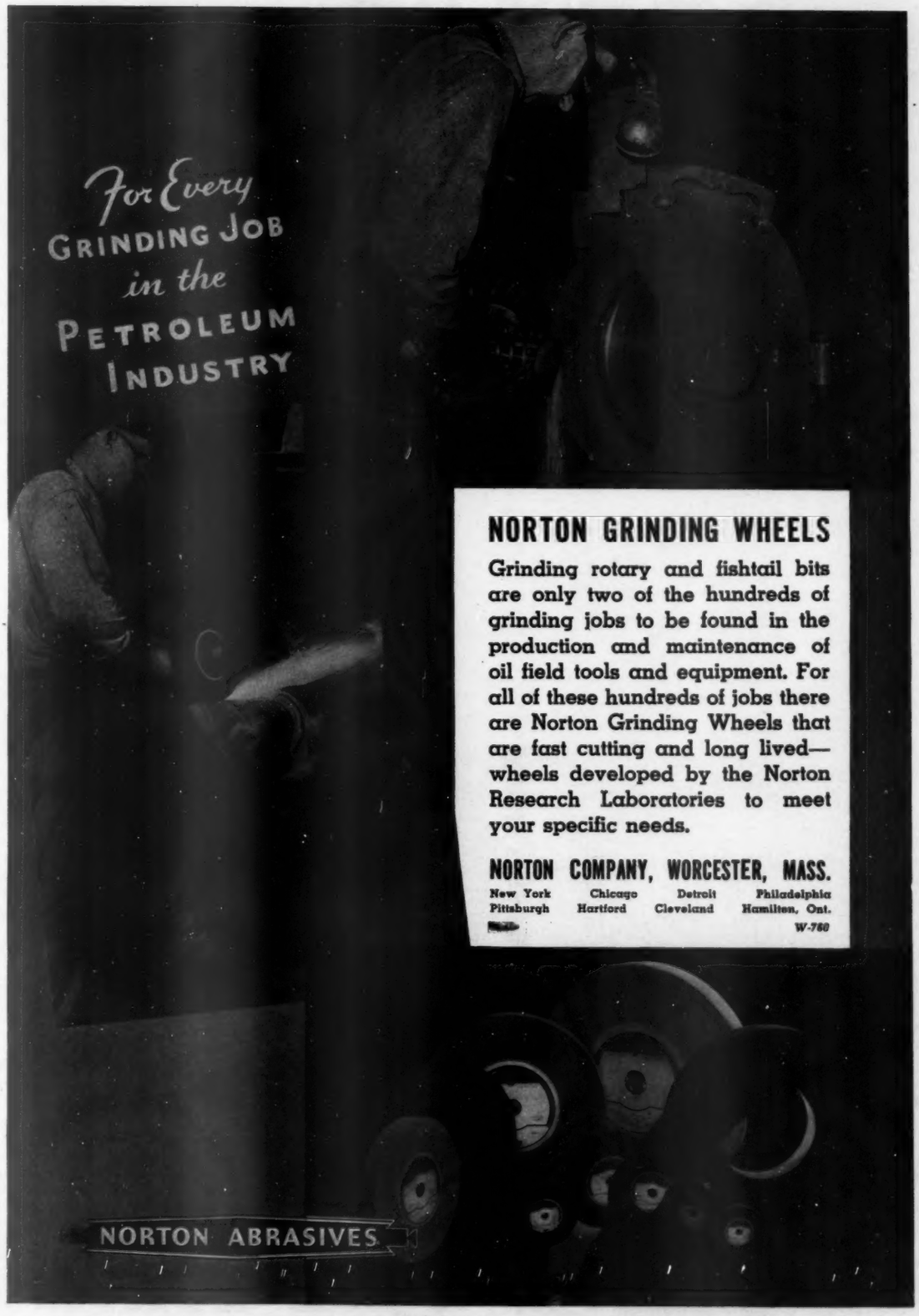
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sand was logged approximately 400 ft. deeper than the discovery well which was completed as a distillate well in a 5,200-ft. sand.

Richardson Petroleum Co. marked up an important extension and opened a new sand in the Robstown field, Nueces County, with the completion of No. 1 Studer. This well is located about 1 mile south of the discovery well, near the Robstown townsite, and the well was completed for an initial production of 225 bbl. of pipe-line oil per day through ¼-in. choke. The well is producing oil from sand at 5,195-5,207½ ft., and gas at 4,583-90 ft. The city council of Robstown has granted several drilling permits within the townsite and Richardson Petroleum Co. is engaged in drilling its first well, but prospects of developing production are not encouraging. Distillate production was opened on this structure in August 1939, by Shield Oil Co.'s No. 1 Magee, completed in sand at 5,559-68 ft.

New discoveries, important extensions and new sand discoveries in several proven fields resulted in a widespread development program in Victoria County, and drilling activity in this county is expected to be extended over a period of several months. New discoveries not previously mentioned included the North Keeran, North McFaddin and Terrell fields, while important extensions and new sand discoveries were opened at the McFaddin and Keeran fields. With several known productive sands extending from the Oakville to the Vicksburg formations, and the encouraging showings logged in one deep Wilcox test, wildcatting in this county has been placed in a favorable light, and several blocks are scheduled to be drilled in the near future.

One of the most important phases of operations has been the increase in development of submerged leases offshore from Nueces and Kleberg counties in Nueces and Laguna Madre bays. Humble Oil & Refining Co. opened the East Flour Bluff field in Laguna Madre Bay, while Skelly Oil Co. continues to test its wildcat offshore from Kleberg County which has shown promise of production. Sinclair Prairie Oil Co. and W. R. R. Oil Co. are developing their leases offshore from the East White Point field, in Nueces Bay, while additional development is being started by Stanolind Oil & Gas Co. and Humble Oil & Refining Co. on submerged leases in the middle of Nueces Bay.

Three important strikes are believed to have been opened in the Laredo district. These include Manila, Jim Hogg County; Boyle, Starr County, and the Glen field, Webb County. Approximately 5 miles southeast of the Barbacoas field, George R. Boyle and others' No. 1 Carruth flowed 93 bbl. of 43.9-gravity oil per day through various chokes, from the Pettus sand at 3,490-98 ft., while in Jim Hogg County, and 1 mile west of the Randado field, Achning & Daubert's No. 1 Wood flowed 117 bbl. per day through ⅛-in. choke from the Pettus sand at 2,603-14 ft. The two discoveries are expected to create a new type of play as this is the first Pettus sand production to be opened in this section of South Texas.

Interstate Minerals, Inc., opened important Mirando sand production in Webb County with the opening of the Glen field, located about 2 miles northeast of the Mirando field. Sand and sandy shale showing oil were cored at intervals from 2,173-85 ft., the total depth, and the well flowed at the rate of 60 bbl. per hour through a ½-in. choke. Development is being carried on by Interstate Minerals, Inc., Transwestern Oil Co., and O. W. Killam. At the end of June, seven wells had been completed, and four rigs were running.

New sand and important extensions were also opened at Saxet, and the Richard King fields, Nueces County; East White Point, San Patricio and Nueces counties; Fagan, Refugio County; Ben Bolt, Jim Wells County; McCampbell, Aransas and San Patricio counties, and the Rincon and Sun fields in Starr county.

SOUTHWEST TEXAS—(Laredo District, Continued)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
CHARAMOUSA:							
Daily average	430	423	427	417	399	340	
Month	13,330	12,267	13,237	12,510	12,369	10,200	73,913
COLE:							
Daily average	7,055	5,116	5,145	4,868	4,714	4,520	
Month	218,705	148,351	159,487	146,043	146,134	135,600	954,320
COLMENA:							
Daily average	136	186	177	189	184	132	
Month	4,216	5,394	5,484	5,665	5,704	3,960	30,423
COLORADO:							
Daily average	1,165	950	1,978	2,526	2,114	2,193	
Month	36,115	27,542	61,314	75,784	65,534	65,790	332,079
COMITAS:							
Daily average	641	654	677	767	734	730	
Month	19,871	18,975	21,001	23,012	22,754	21,900	127,513
CUEVITAS:							
Daily average	323	271	558	569	509	427	
Month	10,013	7,871	17,303	17,062	15,779	12,810	80,838
DRISCOLL:							
Daily average	137	971	4,846	1,940	2,548	2,770	
Month	4,247	28,157	150,212	58,185	78,988	83,100	402,889
ESCOBAS-CUELLAR:							
Daily average	2,294	2,278	2,454	2,758	2,384	2,363	
Month	71,114	66,053	76,064	82,746	73,904	70,890	440,771
EZZELL:							
Daily average	1,891	1,360	1,323	1,292	1,286	1,097	
Month	58,621	39,443	41,018	38,759	39,866	32,910	250,617
FITZSIMMONS:							
Daily average	2,723	2,733	2,574	2,522	2,180	1,794	
Month	84,413	79,251	79,786	75,662	67,580	53,820	440,512
GOVERNMENT WELLS:							
Daily average	10,673	10,957	10,917	10,795	9,966	8,757	
Month	330,863	317,764	338,442	323,824	308,946	262,710	1,882,549
HOFFMAN:							
Daily average	3,854	3,957	6,042	5,874	5,802	4,922	
Month	119,474	114,748	187,294	176,228	179,862	147,660	925,266
JACOBS:							
Daily average	326	420	344	351	372	358	
Month	10,106	12,192	10,675	10,529	11,532	10,740	65,774
KELSEY:							
Daily average	1,776	1,964	2,100	2,138	1,922	1,711	
Month	55,056	56,968	65,098	64,144	59,582	51,330	352,178
KILLAM:							
Daily average	441	464	401	366	301	320	
Month	13,671	13,469	12,423	10,980	9,331	9,600	69,474
LABBE:							
Daily average	111	234	176	159	164	161	
Month	3,441	6,783	5,451	4,770	5,084	4,830	30,359
LOMA NOVIA:							
Daily average	8,737	9,468	8,971	8,655	8,781	7,827	
Month	270,847	274,566	278,090	259,655	272,221	234,810	1,590,179
LOPEZ:							
Daily average	3,712	4,037	5,071	5,029	5,390	4,637	
Month	115,172	117,085	157,207	150,882	167,090	139,110	846,546
MIRANDO VALLEY:							
Daily average	932	937	1,096	1,155	1,033	1,180	
Month	28,892	27,184	33,981	34,635	32,023	35,400	192,115
MOCA:							
Daily average	175	198	142	137	197	270	
Month	5,425	5,741	4,397	4,114	6,101	8,100	33,878
MUNSON:							
Daily average	180	144	126	136	143	120	
Month	5,580	4,172	3,897	4,073	4,433	3,600	25,755
NORTH SWEDEN (Benavides):							
Daily average	6,273	6,326	7,501	7,203	6,269	5,426	
Month	194,463	183,466	232,539	216,046	194,339	162,780	1,183,633
OILTON:							
Daily average	675	709	730	718	725	693	
Month	20,925	20,572	22,636	21,529	22,475	20,790	128,927
PETERS:							
Daily average	54	90	118	106	129	111	
Month	1,674	2,610	3,653	3,180	3,999	3,330	18,446
PIEDRA DE LUMBRE:							
Daily average	.....	1,898	1,851	1,785	1,304	1,799	
Month	.....	55,045	57,373	53,564	40,424	53,970	260,376
RANCHO SOLO:							
Daily average	471	420	344	351	434	367	
Month	14,601	12,192	10,675	10,529	13,454	11,010	72,461
RANDADO:							
Daily average	227	314	146	345	237	367	
Month	7,037	9,113	4,513	10,362	7,347	11,010	49,382
RICABY:							
Daily average	415	301	348	362	381	131	
Month	12,865	8,739	10,776	10,863	11,811	3,930	58,984
RINCON:							
Daily average	153	119	509	1,048	2,222	2,262	
Month	4,743	3,451	15,771	31,405	68,882	67,860	192,112
SAMFORDYCE:							
Daily average	1,815	1,703	1,541	1,487	1,536	1,412	
Month	56,265	49,374	47,781	44,565	47,616	42,360	287,961
SARNOSA:							
Daily average	352	378	390	399	365	425	
Month	10,912	10,966	12,095	11,962	11,315	12,750	70,000
SEVEN SISTERS:							
Daily average	5,116	4,966	7,460	7,179	7,377	6,273	
Month	158,596	144,023	231,249	215,373	228,687	188,190	1,166,118
SUN:							
Daily average	558	652	705	725	859	773	
Month	17,298	18,911	21,860	21,705	26,629	23,190	129,593
SWEDEN:							
Daily average	1,990	1,535	2,612	2,218	1,931	2,207	
Month	61,690	44,512	81,007	66,546	59,861	66,210	379,826
TARANCHUAS:							
Daily average	21	95	200	233	228	234	
Month	651	2,767	6,207	6,990	7,068	7,020	30,693
TESORO:							
Daily average	175	176	182	165	146	121	
Month	5,425	5,106	5,634	4,938	4,526	3,630	29,259
VOLPE:							
Daily average	266	314	361	433	419	386	
Month	8,246	9,106	11,191	12,990	12,989	11,580	66,102
MISCELLANEOUS:							
Daily average	825	440	411	406	614	747	
Month	25,575	13,012	12,733	12,187	19,034	22,410	104,951
Daily average	69,102	70,869	84,144	81,309	79,629	73,299	
First 6 months 1940	2,142,169	2,055,219	2,608,462	2,439,266	2,468,493	2,198,970	13,912,579
First 6 months 1939	2,444,784	2,348,836	2,583,137	2,579,790	2,440,661	2,203,830	14,601,038
First 6 months 1938	2,373,019	2,131,696	2,373,459	2,630,340	2,491,594	2,189,820	14,189,928
First 6 months 1937	2,110,542	2,338,672	2,635,930	2,285,520	2,426,029	2,318,700	14,115,393

Miscellaneous pools and their total production (in bbl.) for the first 6 months of 1940 were: Albercas, 8,054; Barbacoas, 720; Boyle, 1,260; Carolina-Texas, 2,514; Charco Redondo, 1,487; Chiltipin, 6,380; Glen, 3,595; Gutierrez, 871; Hayden, 396; Henne-Winch-Farris, 539; Laurel, 2,354; Las Animas, 4,370; Loma Alta, 7,986; Loma Vista, 941; Los Olmos, 13,098; Muralla, 13,141; North Killiam, 4,813; North Kohler, 17,183; Piedra Pintas, 31; Rio Grande City, 11,563; Roma, 1,125; Sejita, 1,360; Manila, 1,170. Total production, 104,951 bbl.

North Louisiana, Arkansas

(Continued from Page 118)

possibly as many as 10 such tests may be drilled before the end of the year. Shallow drilling, particularly in the southwestern corner of the state along the faulted trend around Fouke, will also receive attention. Other shallow wildcatting in scattered sections throughout the southern tier of counties is expected to continue.

North Louisiana's wildcatting for the last half of 1940 is obscure, but some deep tests will doubtless be drilled in the few remaining prospects marked by established shallow production. Sabine and La Salle parishes may see an increase in exploration, with a deep test of considerable importance now under way in the former parish, and outpost drilling now active in the latter, around the newly discovered Olla field.

The East Texas wildcat play, now actively pursued just west of the border counties, may be expected to bring further tests to those edge areas. Leasing and geophysical prospecting indicate that Bowie, Cass, Harrison, Marion, Sabine and Shelby counties will have wildcat tests before the end of the year.

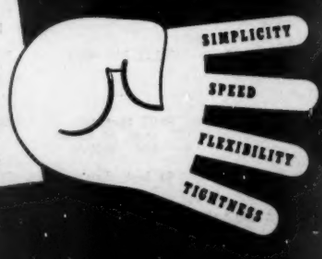
70 MORE MILES OF DRESSER-COUPLED GAS LINE ADDED TO ORIGINAL 175!

To provide for expanding domestic and industrial markets and an increase from 90 to 100 million cubic feet in Detroit's daily demand, progressive Michigan Gas Transmission Corporation is hastening construction of 55 new miles of 24" OD loop line between Montezuma and Zionsville, Indiana —completing the paralleling of its 20" natural-gas transmission line from the Illinois-Indiana line to Zionsville, first looped in 1939 with 15 miles of 24" OD pipe.

So, for the third successive time* during a four-year period, Dresser Couplings get the call on this important system. To date, well over 15,000 "Dressers" have brought Simplicity, Speed, Flexibility, and Tightness to its three pipe-line installations alone—proof that "ALL FOUR" Dresser advantages are vital in making and keeping modern pipe-lines modern! DRESSER MANUFACTURING COMPANY, BRADFORD, PA.

Third Call for Dresser Couplings

*In 1936, Michigan Gas Transmission Corporation's 22" OD main carrier from the then eastern terminus at Zionsville, Indiana, to Detroit, Michigan, was Dresser-coupled (175 miles). In 1939, two loops of 24" OD pipe totalling approximately 15 miles were also joined with "Dressers." In 1940, 55 additional miles of 24" OD loop line, *again* joined with "Dressers" and with "Armored" Gaskets for cathodic protection, are being laid; maximum working pressure: 600 psi.; contractor: T. R. Jones, Dallas, Tex.



ONLY "DRESSERS" GIVE YOU ALL FOUR!

WILDCAT EFFORTS OPEN 11 FIELDS IN WEST TEXAS; 1 IN NEW MEXICO

By R. MARNE SANFORD

Wildcat efforts throughout West Texas during the past 6 months resulted in the discovery of 11 new fields or producing areas. Unlike West Texas discoveries of the past years, none, with the possible exception of one, has shown any great promise of becoming an important oil field.

With the Wasson, Bennett and Denver fields successfully and completely joined about a year ago into the large Wasson field, drilling activity throughout the past 6 months has centered in Ector County's Johnson link area and in the development of inside locations in the Wasson field. The Johnson area, located between the North Cowden field and the Foster field in Ector County embraced only about six wells at the start of the year and was at that time considered only a north extension area to the Foster field. Subsequent drilling has proven, with the exception of a few noncommercial wells, that the North Cowden field and the Foster field will be definitely joined by the Johnson area. The linking of these fields, together with work during May and June which indicated the linking of the Slaughter field of Hockley County with the Duggan field of Cochran County, gives West Texas three oil fields each embracing more than 40,000 proven acres. They are Wasson, North Cowden-Foster, and Slaughter-Duggan.

Proven field development and extensions provided more new oil reserve for West Texas during the past 6 months than did new discoveries. Likewise, field extensions added more proven acreage than did the combined total of new discoveries.

Despite the fact that at several times during the past 6 months West Texas activity greatly exceeded the similar period of a year ago, the second half of the year was started with the two periods about on even keel. Up to July of this year a total of 1,022 completions were listed for the district. On July 1, 1939, there were 931 recorded, a difference of only 71 completions.

New Todd Deep Field

Based on development to date, Crockett County's Todd deep field is the most significant discovery of the 6 months' period in West Texas. The discovery well was Continental Oil Co.'s No. 1 Todd, S½ Section 29, Block W.X., G.C.&S.F. Survey. Completed for a flowing gage through tubing of 840 bbl. of oil in 12½ hours

WEST TEXAS

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
APCO:							
Daily average	151	114	121	157	131	122	
Month	4,673	3,299	3,763	4,721	4,063	3,660	24,179
CEDAR LAKE:							
Daily average	61	87	103	159	131	125	
Month	1,897	2,515	3,178	4,764	4,051	3,750	20,155
CHURCHFIELD:							
Daily average	4,761	4,917	5,111	4,960	4,322	4,019	
Month	147,580	142,604	158,453	148,796	133,978	12,057	743,468
COWDEN-CRANE:							
Daily average	910	1,054	946	954	887	825	
Month	28,211	30,575	29,326	28,618	27,495	24,750	168,975
COWDEN, NORTH:							
Daily average	9,973	10,164	10,355	13,055	12,028	11,186	
Month	309,157	294,754	320,993	391,664	372,865	335,580	2,025,113
COWDEN, SOUTH:							
Daily average	443	458	440	506	595	553	
Month	13,729	13,276	13,654	15,181	18,459	16,590	90,889
DEEP ROCK:							
Daily average	154	177	177	169	143	132	
Month	4,781	5,124	5,500	5,070	4,439	3,960	28,874
DUGGAN:							
Daily average	753	532	960	763	608	565	
Month	23,348	15,417	29,771	22,890	18,839	16,950	127,215
DUNE:							
Daily average	407	419	435	421	399	371	
Month	15,391	12,148	13,492	12,619	12,376	11,130	77,156
EAVES:							
Daily average	281	268	260	222	188	175	
Month	8,712	7,771	8,078	6,659	5,816	5,250	42,286
EMPEROR:							
Daily average	1,419	1,703	1,802	1,774	1,740	1,618	
Month	43,986	49,395	55,866	53,211	53,930	48,540	304,928
EMMA:							
Daily average	992	685	722	699	660	614	
Month	28,586	19,860	22,389	20,975	20,466	18,420	130,696
ESTES:							
Daily average	6,706	6,071	8,400	8,572	7,793	7,247	
Month	207,884	176,067	260,401	257,150	241,575	217,410	1,360,487
FOSTER:							
Daily average	10,866	10,052	11,284	11,723	10,975	10,207	
Month	336,835	291,493	349,792	351,675	340,251	306,210	1,976,256
FUHRMAN:							
Daily average	1,570	1,555	1,555	1,495	1,342	1,248	
Month	48,667	45,112	48,194	44,839	41,598	37,440	265,850
GOLDSMITH:							
Daily average	22,622	19,374	26,782	26,646	24,450	22,739	
Month	701,278	561,837	830,240	799,380	757,942	682,170	4,332,847
GULF McELROY:							
Daily average	5,353	9,290	9,730	9,858	9,341	8,687	
Month	165,947	269,404	301,625	295,753	289,579	260,610	1,582,918
HALLEY:							
Daily average	309	292	289	277	266	247	
Month	9,584	8,473	8,954	8,303	8,246	7,410	50,970
HARPER:							
Daily average	3,665	3,499	3,801	4,597	4,257	3,959	
Month	113,620	101,466	117,813	137,926	131,959	118,770	721,554
HENDERSON:							
Daily average	2,370	2,735	2,728	2,623	2,420	2,251	
Month	73,481	79,329	84,568	78,693	75,012	67,530	458,613
HENDRICKS:							
Daily average	8,236	7,987	8,189	8,137	8,061	7,497	
Month	255,313	231,620	253,866	244,110	249,897	224,910	1,459,716

(Continued on Next Page)

DISCOVERIES IN WEST TEXAS DURING FIRST HALF OF 1940

County, location, and discovery well—	Date	Depth	Gage	Formation	No. of wells	Name of pool	Remarks—
Crockett—Stanolind Oil & Gas Co.'s No. 4 Todd, Sec. 30, Blk. WX, G.C.&S.F. Sur.	Jan. 8	1,220-25	180 bbl./day	Upper Permian lime	2	Wyatt	
Pecos—Olson Drilling Co. and B. McCandless' No. 1 V. W. Crockett, C Sec. 5, Blk. 110, T.C. Sur., 2 miles SW of Apco field	Feb. 10	4,479-4,518	286 bbl./2½ hrs.	Ellenburger lime of Ordovician	1		May prove link with Apco field.
Crockett—Continental Oil Co.'s No. 2 Todd, S½ Sec. 29, Blk. WX, G.C.&S.F. Sur.	Apr. 1	5,590-5,690	840 bbl./12½ hrs.	Strawn of Pennsylvanian	3	Todd deep	
Crockett—Soma Oil & Gas Co.'s No. 1 Noelke, SE NW Sec. 3, Blk. GG, H.E.&W.T. Sur., 5 miles E of Yates field	Apr. 15	1,035-65	192 bbl./4 hrs.	Yates sand	2	Noelke field	
Ward—Kenneth Slack's No. 1 Bird Hayes, Sec. 148, Blk. 34, H.&T.C. Sur.	Apr. 25	5,041-90	Still testing	Delaware sand and lime	1	Slack	May comp. as large gas well.
Pecos—R. L. Walker's No. 1 White-Baker, NW SE Sec. 86, Blk. 194, G.C.&S.F. Sur., 5 miles E of Taylor-Link field	Apr. 29	1,991-2,016	19 bbl./24 hrs.	Upper Permian lime	1	Walker	
Crane—Gulf Oil Corp.'s No. 1-A Tubb, Sec. 20, Blk. 27-B, P.S.L. Sur.	May 1	5,760-83	5,121 bbl./day	Ellenburger lime of Ordovician	1		
Ward—Atlantic Refining Co.'s No. 1 Wickett-University, Sec. 12, Blk. 16, University Sur., 2½ miles W of Estes field	May 20	2,892-2,907	Still testing; (est. 30 to 40 bbl. daily)	Middle Permian	1		
Tom Green—Bartlett C. Mann's No. 1 Funk, SW SE Sec. 32, Blk. 5, H.&T.C. Sur.	May 27	1,150-68	61 bbl./day	Blaine lime of Permian	1	Mann	
Crockett—Moore Exploration Co.'s No. 1 A. C. Hoover, Sec. 16, Blk. 1, G.C.&S.F. Sur.	June 15	2,012-2,145	(Still testing): Swbd. 20 B.O. in 6 hrs.	Upper Permian	1	Moore	
Andrews—Atlantic Refining Co. and Helmerich & Payne, Inc.'s No. 1 University, Sec. 11, Blk. 11, University Lands Sur.	June 20	4,350-4,475	Est. 96 bbl./day, swbg.; (still tstg.)	Big lime	1		

from the Strawn series pay from 5,590 to 5,690 ft., the discovery marked the opening of one of the few Pennsylvanian producing fields in West Texas. The pay section was a zone of 90 ft. of porous, saturated crinoidal limestone in the Strawn series. The discovery of this field marked the culmination of about 15 years' exploration and the expenditure by four different companies of about $1,000,000 on the large Tood ranch. The discovery was the fourth deep exploratory hole drilled on the 47,808-acre ranch. Surface geology of the area was worked by the old Marland Oil Co. in 1925. Gas production was found at 1,600 ft. in 1926 by Continental Oil Co., successor to Marland Oil Co., and the following year some oil production was opened from the same zone. Stanolind Oil & Gas Co. drilled an 8,041-ft. failure in 1932 and in 1937 Superior Oil Co. drilled a 7,948-ft. failure. Continental Oil Co. abandoned its No. 1 Todd at 7,010 ft. in January of this year and due to approaching lease expiration started the No. 2 Todd which opened the field.

The field embraced three producers as the year went into the second half, all completed for more than 1,000 bbl. daily. The Continental Oil Co., largest present lease holder in the field, plans a steady but not rapid development program for the area.

WEST TEXAS

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas
Andrews	18	18,662	3	0
Brewster	1	0	1	0
Cochran	1	523	0	0
Concho	2	0	2	0
Crane	44	71,904	2	0
Crockett	17	8,127	7	0
Ector	310	309,770	8	0
Gaines	72	53,190	2	0
Hockley	29	23,771	1	0
Howard	14	6,202	2	0
Irion	2	0	2	0
Loving	6	407	2	0
Lynn	3	0	3	0
Mitchell	2	223	1	0
Nolan	2	9	1	0
Pecos	63	12,150	8	0
Reeves	1	0	1	0
Runnels	1	188	0	0
Schleicher	1	0	1	0
Scurry	40	4,815	2	0
Terrell	2	0	2	0
Terry	2	828	1	0
Tom Green	3	25	2	0
Upton	25	17,797	0	0
Ward	72	49,526	5	3
Winkler	26	12,581	1	2
Yoakum	263	263,431	2	0
Total	1,022	854,129	62	5

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	186	155,064	11	0
February	150	131,595	10	0
March	169	146,637	10	2
April	204	164,325	14	0
May	147	120,117	9	1
June	166	136,391	8	2
First half 1940	1,022	854,129	62	5
First half 1939	888	685,401	76	3
Difference	134	168,728	14	2

Other Discoveries

During the deep-development program for the Todd ranch in Crockett County, Continental Oil Co.'s No. 1 Todd, a deep test later abandoned, found a show of oil at 1,220 ft. A twin well was started to the deep operation by Stanolind Oil & Gas Co., which held the shallow mineral rights on the lease and in January it was completed for 180 bbl. daily from a 5-ft. section of slight saturation in the upper Permian zone drilled from 1,220-25 ft. The shallow discovery well was Stanolind's No. 4 Todd, Section 30, Block W.X., G.C.&S.F. Survey. As the half-year period closed only one other producer had been drilled to the shallow pay. Both Continental Oil Co. and Stanolind Oil & Gas Co. geologists believe that no important field will result from the discovery.

Early in February in Pecos County and about 2 miles southwest of the Ellenburger lime-producing Apco field, Olson Drilling Co. and Bryce McCandless' No. 1 Virginia W. Crockett, C Section 5, Block 110, T.C. Survey, was completed for 286 bbl. of oil, flowing, in 2½ hours. This rates the discovery a daily potential gage of more than 2,500 bbl. Production is from the Ellenburger lime of Ordovician age and it was believed at the date of discovery that subsequent drilling would prove the area to be a major extension for the Apco field. However, since taking its official gage, the well has remained shut in. No oil has been produced from the discovery. Further actions of the discovery operators regarding the area have not been determined.

Crockett County Play

Early in April Crockett County and the entire south-

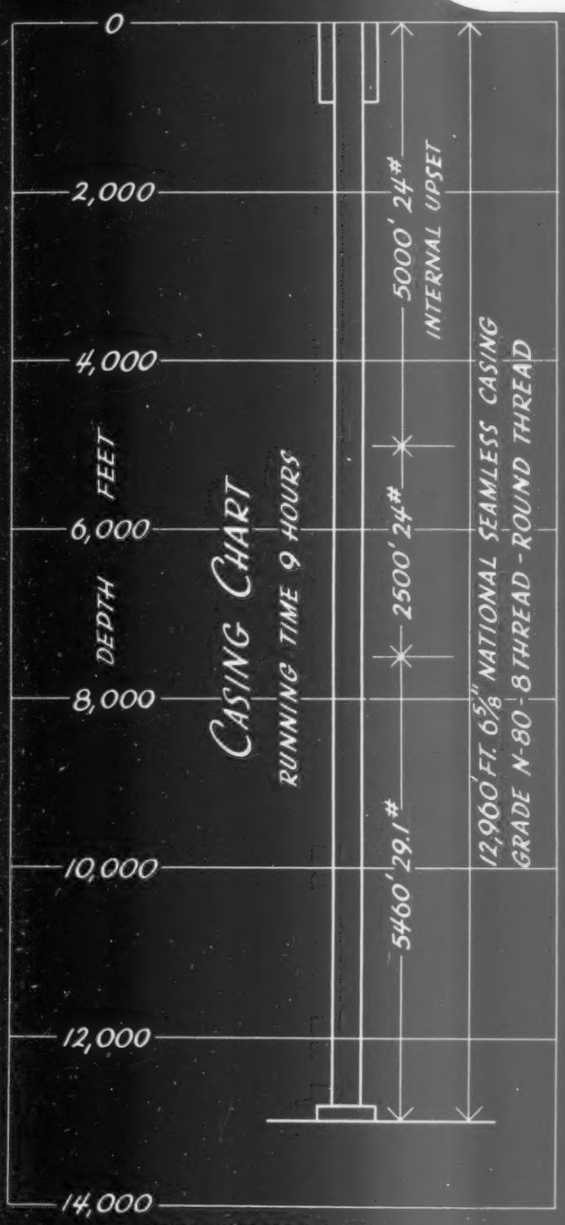
(Continued on Page 134)

WEST TEXAS (Continued)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Tl. 6 mos. (bbl.)
HOWARD-GLASSCOCK:							
Daily average	15,056	15,084	15,131	14,786	13,887	12,915	
Month	466,743	437,427	469,062	443,586	430,510	387,450	2,634,778
IATAN-E. HOWARD:							
Daily average	5,286	5,120	5,084	4,910	4,881	4,539	
Month	163,874	148,475	157,604	147,312	151,308	136,170	904,743
JOHNSON:							
Daily average	151	244	279	319	493	458	
Month	4,694	7,067	8,651	9,588	15,280	13,740	59,020
JORDAN:							
Daily average	3,206	2,660	4,150	3,993	3,910	3,636	
Month	99,394	77,139	128,643	119,776	121,217	109,080	655,249
KERMIT:							
Daily average	10,602	10,028	9,782	9,459	10,555	9,816	
Month	328,656	290,829	303,234	281,779	327,198	294,480	1,826,176
KEYSTONE (COLBY):							
Daily average	2,360	2,298	3,328	3,309	3,044	2,831	
Month	73,173	66,657	103,154	99,275	94,460	84,930	521,649
KEYSTONE (LIME):							
Daily average	1,923	1,565	2,397	2,294	2,066	1,921	
Month	59,600	45,371	74,309	68,829	64,036	57,630	369,775
LECK:							
Daily average	438	329	347	440	600	558	
Month	13,564	9,547	10,760	13,203	18,597	16,740	82,411
LEHN:							
Daily average	280	312	335	388	373	347	
Month	8,689	9,048	10,398	11,648	11,557	11,410	62,750
MAGNOLIA-SEALY:							
Daily average	606	537	742	772	760	707	
Month	18,778	15,583	22,987	23,175	23,568	21,210	125,301
MASON:							
Daily average	314	258	273	246	225	209	
Month	9,736	7,476	8,454	7,379	6,970	6,270	46,285
MASTERSON:							
Daily average	209	175	191	177	175	163	
Month	6,489	5,074	5,929	5,314	5,433	4,860	33,099
McCLINTIC:							
Daily average	1,007	1,038	1,268	1,228	1,140	1,060	
Month	31,210	30,094	39,305	36,851	35,341	31,800	204,601
MEANS:							
Daily average	2,471	2,543	2,612	2,585	2,421	2,252	
Month	76,591	73,758	80,980	77,538	75,046	67,580	451,473
NETTERVILLE:							
Daily average	118	133	124	116	121	120	
Month	3,656	3,847	3,851	3,470	3,761	3,600	22,185
NORTHWEST:							
Daily average	563	657	560	739	749	697	
Month	17,461	19,064	17,374	22,164	23,230	20,910	120,203
PAYTON:							
Daily average	2,893	2,467	2,328	2,193	2,006	1,866	
Month	89,694	71,535	72,160	65,788	62,171	55,980	417,328
PECOS VALLEY:							
Daily average	1,215	1,113	1,496	1,471	1,403	1,305	
Month	37,680	32,287	46,391	44,119	43,482	39,150	243,109
PENWELL:							
Daily average	3,440	3,371	3,936	3,803	3,438	3,197	
Month	106,624	97,758	122,006	114,084	106,571	95,910	642,953
SAND HILLS:							
Daily average	1,766	1,828	2,296	2,466	2,227	2,071	
Month	54,750	53,003	71,167	73,974	69,030	62,130	384,054
SCARBOROUGH:							
Daily average	1,324	2,031	2,011	1,932	1,772	1,648	
Month	41,045	58,914	62,348	57,970	54,921	49,440	324,638
SEMINOLE:							
Daily average	903	1,128	1,267	1,483	2,663	2,477	
Month	27,995	32,718	39,288	44,482	82,556	74,310	301,349
SHEARER:							
Daily average	1,406	764	759	724	645	599	
Month	43,598	22,167	23,514	21,722	19,999	17,970	148,970
SHIPLEY:							
Daily average	1,103	1,657	1,682	1,594	1,548	1,440	
Month	34,193	48,050	52,151	47,829	47,997	44,200	274,420
SLAUGHTER:							
Daily average	2,652	2,043	3,035	2,725	2,298	2,137	
Month	82,204	59,256	94,080	81,744	71,253	64,110	452,647
SNYDER:							
Daily average	1,947	1,697	1,526	1,461	1,381	1,284	
Month	60,342	49,218	47,310	43,846	42,811	38,520	282,047
TAYLOR LINK:							
Daily average	1,703	1,756	1,753	1,712	1,647	1,532	
Month	52,785	50,922	54,329	51,358	51,066	45,960	306,420
TOBARG:							
Daily average	1,584	1,643	1,651	1,603	1,660	1,544	
Month	49,119	47,655	51,167	48,102	51,474	46,320	293,837
WADDELL:							
Daily average	1,659	1,124	2,203	2,164	1,933	1,798	
Month	51,436	32,609	68,300	64,926	59,921	53,940	331,132
WARD, NORTH:							
Daily average	6,263	6,121	7,129	7,071	6,483	6,029	
Month	194,144	177,519	221,012	212,120	200,968	180,870	1,186,633
WARD, SOUTH:							
Daily average	5,109	4,604	5,587	5,304	5,134	4,775	
Month	158,381	133,525	173,196	159,117	159,141	143,250	926,610
WASSON:							
Daily average	25,288	30,494	36,439	32,888	32,008	29,767	
Month	783,919	884,327	1,129,597	986,654	992,237	893,010	5,669,744
WESTBROOK:							
Daily average	567	744	733	757	777	723	
Month	17,574	21,674	22,708	22,704	24,084	21,690	130,434
WHEAT:							
Daily average	1,057	1,053	1,041	968	1,092	1,018	
Month	32,779	30,526	32,265	29,050	33,863	30,480	188,963
WHITE AND BAKER:							
Daily average	147	150	179	162	151	142	
Month	4,572	4,361	5,558	4,851	4,696	4,260	28,298
YATES:							
Daily average	20,789	18,540	24,906	24,122	21,658	19,355	
Month	644,466	537,620	772,074	723,651	671,390	580,665	3,929,806
BIG LAKE:							
Daily average	6,095	6,153	6,099	6,043	5,959	5,541	
Month	188,951	178,441	189,058	181,293	184,728	166,230	1,088,701
CROCKETT:							
Daily average	325	331	332	318	279	259	
Month	10,080	9,602	10,287	9,534	8,657	7,770	55,930
McCAMEY:							
Daily average	10,974	12,658	12,570	12,256	12,223	11,367	
Month	340,203	367,075	389,664	367,693	378,911	341,010	2,184,556
WORLD:							
Daily average	1,116	1,177	1,236	1,209	1,114	1,036	
Month	34,619	34,137	38,326	36,263	34,532	31,081	208,957
MISCELLANEOUS:							
Daily average	670	793	816	840	995	975	
Month	20,777	23,010	25,305	25,195	30,838	29,260	154,385
Daily average	228,610	229,859	263,802	290,732	248,634	226,952	
First 6 months 1940	7,086,898	6,665,904	8,177,872	7,821,953	7,707,645	6,808,552	44,268,824
First 6 months 1939	6,438,705	5,761,086	6,597,769	6,414,125	6,682,136	6,480,616	38,374,437
First 6 months 1938	5,710,776	5,115,958	5,936,660	5,908,270	5,596,757	5,416,811	33,685,232
First 6 months 1937	5,406,938	5,391,326	6,579,662	6,145,724	6,609,318	6,385,562	36,518,530
First 6 months 1936	4,553,683	4,423,051	5,162,895	5,187,630	5,444,065	5,060,640	29,831,964
First 6 months 1935	4,552,381	4,149,964	4,600,741	4,392,450	4,469,983	4,305,750	26,471,269

Miscellaneous pools and their total production (in barrels) the first 6 months of 1940 were: Anthony, 269,-Carter, 3,588; Dean, 10,742; Edwards, 1,120; Fromme, 13,010; Garza, 713; Monroe, 4,184; Moore, 8,352; Parker, 5,588; Richards, 643; Wapples-Platter, 7,960; West, 5,347; Beddo, 9,397; Bolt, 246; Grayson, 16,192; Herrington, 6,591; Hurdle, 15,843; Irion, 2,256; McMillan, 9,906; Opp, 730; Page, 6,960; Web-Ray, 4,863 Wyatt, 3,525; Todd Deep, 6,744; Walker, 1,596; Dobbs, 1,020; Noelke, 7,000. Total miscellaneous production 154,385 bbl.

12,960-ft.



CASING CHART FOR K. C. L. A5-8 Wasco Field, Calif.

GOOD MEN AND GOOD MATERIALS

combined to make this well a record-breaker. It was not so much a case of maintaining breakneck speed in all operations as careful planning for maximum efficiency. From erection of the derrick to final cementing, the entire operation progressed according to schedule, without delay. To safely speed the casing job, NATIONAL Seamless was used—because it stabs easily, screws together smoothly, and assures tight, trouble-free joints. Its uniformly high wall strength protects against terrific subterranean pressures.

NATIONAL SEAMLESS means pierced from solid billets of the finest quality steel. Only sound, flawless steel can be used for piercing, since no existing defects can be covered up in this process. At every stage in production, thorough inspections and tests give you double assurance that each length of NATIONAL Seamless will display the same uniform wall strength, dimensional accuracy, and uniformity in all physical properties.

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RECORDS fell like ten-pins during the recent drilling and casing of Continental Oil Company's K.C.L. A5-8, in the Wasco, California, field. In just 50 days of actual drilling, the hole was bottomed at 12,960 feet! And then, to cap this record, the entire hole was cased with a string of NATIONAL Seamless Casing in the almost unbelievable time of 9 hours!

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UNITED STATES STEEL

DISCOVERY IN SOUTHEAST NEW MEXICO DURING FIRST HALF OF 1940

County, location, and discovery well—	Date	Depth	Gage	Formation	No. of wells	Name of pool	Remarks—
Chaves—Harvey E. Yates' No. 1 Johnson, NE NW Sec. 24-15-28, 2½ miles N of Eddy County line	Feb. 15	1,456-1,500	800,000 cu. ft. gas daily; (sweet)	Sand	1		Completed for small gas well after being plugged back from 3,285 ft. Gas has not been marketed as yet.

tern Permian basin area received what was indicated at the time, another Yates field oil boom. Soma Oil & Gas Syndicate's No. 1 Noelke, about 5 miles east of the Yates field and in western Crockett County, blew in one night for what was estimated to the 75,000 bbl. of oil daily. Reports filtered out the following day that the roar of gushing oil could be heard for miles around and that oil had flooded the surrounding countryside and was flowing down a gully into the Pecos River. When the well was finally brought under control it was found that approximately 50,000,000 cu. ft. of gas had blown out the oil accumulation and the once-estimated flow of 75,000 bbl. had diminished to a spray. Precise completion at the oil and gas contact zone, however, netted the well an official gage of 192 bbl. in 4 hours. The final completion was not recorded until about a month after the well first blew in. During this month a wild scramble for leases resulted in the staking of about 10 locations within a radius of 5 miles of the well. Many have been abandoned as dry, some missed the pay zone entirely, and one was completed for a producer. Production in the discovery well was first thought to be from the Yates lime, noted for its high and long-lived recovery. It was found later that production was from the Yates sand which is equally noted for its high initial yield and rapid decline.

As a result of the Soma Oil & Gas Syndicate's discovery, Moore Exploration Corp. staked its No. 1 A. C. Hoover in Section 16, Block 1, G.C.&S.F. Survey, several miles southeast of the discovery. A section of broken saturation was drilled early in June from 2,012 to 2,145 ft., which netted 20 bbl. of oil in 6 hours, swabbing. Operators were still testing as the year went into the second half. Production is from a zone in the upper Permian but not the same level as the Soma Syndicate's discovery well.

TEXAS PANHANDLE

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas
Carson	46	12,320	0	9
Gray	90	25,018	2	5
Hutchinson	108	32,953	3	8
Lipscomb	1	0	1	0
Moore	19	0	0	19
Motley	1	0	1	0
Potter	2	0	2	0
Sherman	1	0	1	0
Wheeler	9	1,415	0	0
Total	277	71,706	10	41

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	44	13,262	0	7
February	49	13,972	4	4
March	33	8,369	1	6
April	54	15,328	1	12
May	55	12,434	1	6
June	42	8,341	3	6
First half 1940	277	71,706	10	41
First half 1939	161	44,966	19	38
Difference	96	26,740	9	3

SOUTHEAST NEW MEXICO

No new oil fields were opened in the southeast New Mexico district during the past 6 months despite the fact that development showed a decided increase over the corresponding period of a year ago. A total of 360 completions were recorded for the first half of 1940 against 297 for the first half of 1939. The increased work was mainly in the Vacuum field of Lea County and the Loco Hills field of Eddy County.

The only discovery in the district was a small gas well in southern Chaves County. It was Harvey E. Yates' No. 1 Johnson, NE NW Section 24-15-18, about 2½ miles north of the Eddy County line. The well was gaged at 800,000 cu. ft. of gas daily from sand pay drilled from 1,456 to 1,500 ft. It was plugged back from a total depth of 3,285 ft. where it had proven barren. Although officially a discovery well, no gas has been marketed from the producer and further development for the area was not indicated by the discovery operator.

Considerable proven acreage was added in two fields of northern Eddy County. Loco Hills spread considerably in a southeast direction engulfing two small areas which were previously thought to be separate spots. These were the McClay and the Creek areas. Outside of extensions to the southeast, the majority of the drilling in the Loco Hills field was confined to inside locations.

The High Lonesome area north of the Grayburg field in Eddy County has developed into a several-thousand-acre field. Although most of it is area only semi-proven, it embraces approximately 7 square miles. It extends southward from the original discovery well in Section 17-16-29, through the Levers area 3 miles to the south and in Section 33-16-29, and includes the Root area 3½ miles further to the southeast and in Section 12-17-29. This entire area is dotted with both gas and oil producers and is believed will develop into a large proven field during the coming months.

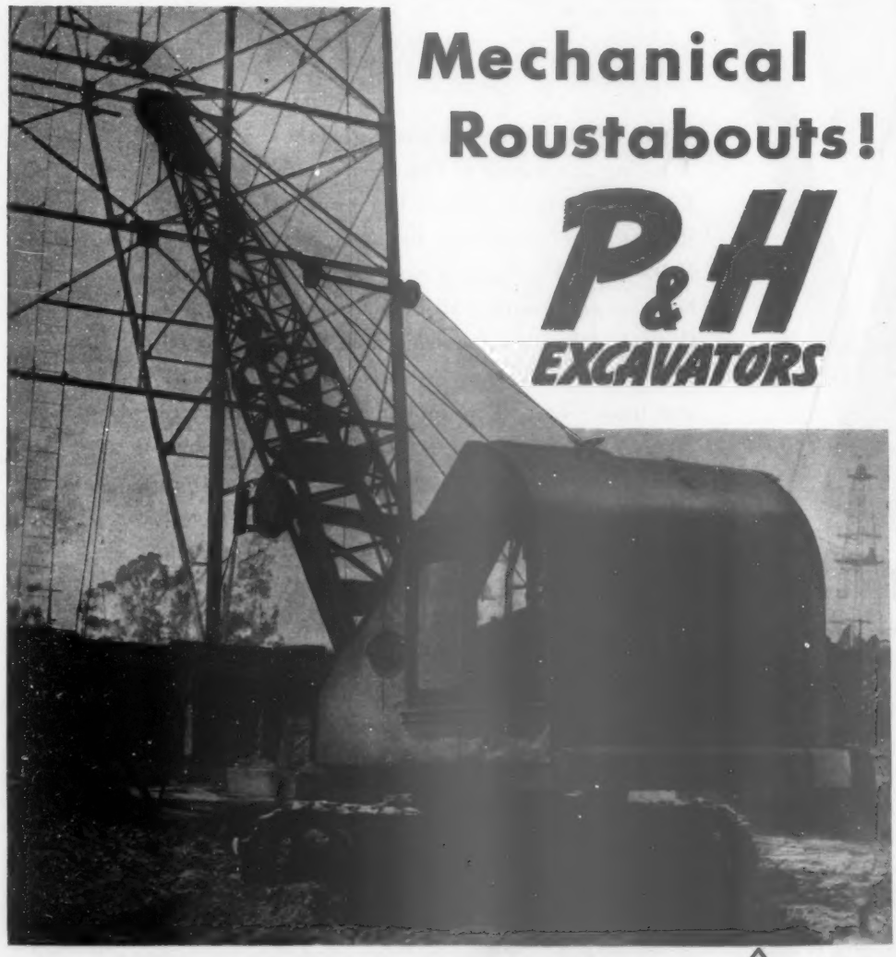
SOUTHEAST NEW MEXICO

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas
Chaves	10	20	9	0
Eddy	154	42,842	39	5
Lea	195	69,584	6	6
Luna	1	0	1	0
Total	360	112,446	55	11

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	79	24,606	16	2
February	58	19,657	6	2
March	52	18,451	5	4
April	75	19,688	11	1
May	40	15,716	7	1
June	56	14,328	10	1
First half 1940	360	112,328	55	11
First half 1939	273	120,807	37	8
Difference	87	8,361	18	3



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NEW MEXICO

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
ARTESIA:							
Daily average	434	447	432	450	421	435	
Month	13,450	12,977	13,396	13,510	13,051	13,050	79,434
COOPER:							
Daily average	3,316	3,522	3,570	3,275	3,392	3,320	
Month	102,794	102,150	110,661	98,245	105,158	99,600	618,608
EAVES:							
Daily average	784	752	726	762	762	740	
Month	24,292	21,795	22,509	22,862	23,625	22,200	137,283
EUNICE:							
Daily average	19,320	19,864	19,747	18,978	18,391	18,325	
Month	598,933	576,054	612,167	569,344	570,130	549,750	3,476,378
GRAYBURG-JACKSON:							
Daily average	4,851	4,611	4,506	4,343	5,615	5,610	
Month	150,370	133,711	139,676	130,290	174,065	16,830	744,942
HARDY:							
Daily average	3,159	3,393	3,352	3,111	2,971	2,995	
Month	97,919	98,400	103,905	93,342	92,102	89,850	575,518
HOBBS:							
Daily average	11,892	13,763	11,298	10,335	10,264	10,175	
Month	368,654	399,125	350,234	310,048	318,184	305,250	2,051,495
HOGBACK:							
Daily average	194	209	191	190	200	195	
Month	6,012	6,058	5,925	5,961	6,200	5,850	36,006
JAL:							
Daily average	521	525	486	483	458	462	
Month	16,154	15,223	15,066	14,476	14,200	13,860	88,979
LANGLIE:							
Daily average	4,825	4,763	4,864	4,720	4,304	4,385	
Month	149,586	138,136	150,793	141,588	133,436	128,550	842,089
LEONARD:							
Daily average	648	784	655	689	1,024	1,050	
Month	20,075	22,740	20,301	20,654	31,744	31,500	147,014
LOCO HILLS:							
Daily average	4,609	5,137	5,671	5,361	6,047	6,275	
Month	142,885	148,980	175,804	160,336	187,457	188,250	1,004,212
LYNCH:							
Daily average	487	557	479	424	402	408	
Month	15,097	16,160	14,843	12,708	12,450	12,240	83,498
LYNN:							
Daily average	734	905	853	815	803	822	
Month	22,743	26,246	26,436	24,439	24,898	24,660	149,422
MALJAMAR AND SOUTH MALJAMAR:							
Daily average	1,337	1,512	1,754	1,853	2,111	1,975	
Month	41,441	43,856	54,377	55,670	65,441	59,250	320,035
MONUMENT:							
Daily average	19,612	20,850	21,225	20,090	18,913	18,860	
Month	607,987	604,658	657,984	602,685	586,295	565,800	3,625,409
MATTIX:							
Daily average	4,576	5,113	5,178	4,808	4,718	4,710	
Month	141,855	148,287	160,524	144,234	146,244	141,300	882,444
PENROSE:							
Daily average	4,467	5,128	4,458	4,571	4,447	4,455	
Month	138,478	148,710	138,213	137,145	137,870	133,650	834,066
RATTLESNAKE:							
Daily average	409	508	326	357	330	320	
Month	12,677	14,734	10,092	10,706	10,230	9,600	68,039
RED LAKES:							
Daily average	301	309	264	260	349	362	
Month	9,345	8,975	8,177	7,796	10,819	10,980	56,092
RHODES:							
Daily average	109	56	129	143	158	154	
Month	3,382	1,617	4,013	4,298	4,895	4,620	22,825
ROBINSON:							
Daily average	239	306	262	269	303	292	
Month	7,394	8,875	8,125	8,078	9,393	8,760	50,625
SHUGART:							
Daily average	448	529	434	405	520	512	
Month	13,879	15,345	13,450	12,157	16,120	15,360	86,311
SKELLY:							
Daily average	1,553	1,740	1,632	1,612	1,521	1,585	
Month	48,133	50,461	50,603	48,362	47,149	77,550	322,258
SOUTH EUNICE:							
Daily average	4,058	4,173	2,187	2,159	2,165	2,180	
Month	125,811	121,023	67,783	64,758	67,111	65,400	511,886
SOUTH LOVINGTON:							
Daily average	1,273	1,248	1,622	1,559	1,246	1,286	
Month	39,451	36,188	50,279	46,784	38,613	38,580	249,895
WEST EUNICE:							
Daily average	202	205	187	232	244	248	
Month	6,248	5,933	5,804	6,956	7,574	7,440	39,955
VACUUM:							
Daily average	15,565	14,926	13,101	13,023	12,663	12,450	
Month	482,529	432,840	406,132	390,699	392,547	373,500	2,478,247
HALFWAY:							
Daily average	0	127	217	181	167	164	
Month	0	3,695	6,737	5,436	5,184	4,920	25,972
ARROWHEAD*:							
Daily average	.....	.....	2,672	2,685	2,647	2,735	
Month	.....	.....	82,833	80,539	82,063	82,050	327,485
MISCELLANEOUS:							
Daily average	197	302	207	236	250	265	
Month	6,101	8,756	7,037	7,066	7,765	7,950	44,675
Daily average	110,119	116,266	112,706	108,389	107,807	103,605	
First 6 months 1940	3,413,675	3,371,708	3,493,879	3,251,672	3,342,013	3,108,150	19,981,097
First 6 months 1939	3,034,244	2,727,517	3,245,319	3,117,539	3,566,243	3,458,791	19,149,653
First 6 months 1938	3,226,339	2,887,254	3,145,000	2,954,202	3,009,427	2,738,019	17,960,241
First 6 months 1937	2,744,129	2,735,529	3,116,093	3,156,154	3,412,581	3,430,106	18,594,592
First 6 months 1936	1,865,049	1,838,608	2,097,447	2,055,198	2,303,441	2,183,776	12,344,519

*Formerly part of South Eunice field.

Miscellaneous pools and their total production (in barrels) for the first 6 months of 1940 were: Aztec, 235; Barber, 1,445; Corbin, 3,641; High-Lonesome, 4,500; North Lynch, 6,242; Skaggs, 11,362; Table Mesa, 15,993; Getty, 1,257. Total production, 44,675 bbl.

TEXAS PANHANDLE

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
CARSON COUNTY:							
Daily average	8,661	7,475	9,544	9,419	8,866	8,245	
Month	268,493	216,788	295,863	282,574	274,846	247,350	1,585,914
GRAY COUNTY:							
Daily average	33,931	37,798	36,180	35,602	32,662	30,376	
Month	1,051,869	1,096,143	1,121,590	1,068,073	1,012,524	1,011,280	6,361,479
HUTCHINSON COUNTY:							
Daily average	24,466	26,365	26,509	25,986	24,263	22,565	
Month	758,446	764,576	821,772	779,583	752,151	676,950	4,553,478
MOORE COUNTY:							
Daily average	790	916	970	879	758	705	
Month	24,503	26,568	30,080	26,367	23,499	21,150	152,167
WHEELER COUNTY:							
Daily average	7,884	5,365	5,253	5,118	4,796	4,460	
Month	244,412	155,584	162,843	153,548	148,661	133,800	998,848
Daily average	75,733	77,919	78,456	77,005	71,345	69,684	
First 6 months 1940	2,347,723	2,259,659	2,432,148	2,310,145	2,211,681	2,090,530	13,651,886
First 6 months 1939	1,983,328	1,783,405	1,985,653	2,173,657	2,074,494	2,097,634	12,098,171
First 6 months 1938	2,080,095	1,741,282	2,085,782	2,013,634	1,863,050	1,854,298	11,638,141
First 6 months 1937	2,092,717	2,079,000	2,366,695	2,283,120	2,602,062	2,576,445	14,000,039
First 6 months 1936	1,918,900	1,702,039	1,908,856	1,855,770	2,009,203	1,841,880	11,236,648
First 6 months 1935	1,833,743	1,725,864	1,974,173	1,801,110	1,893,790	1,796,910	11,025,500

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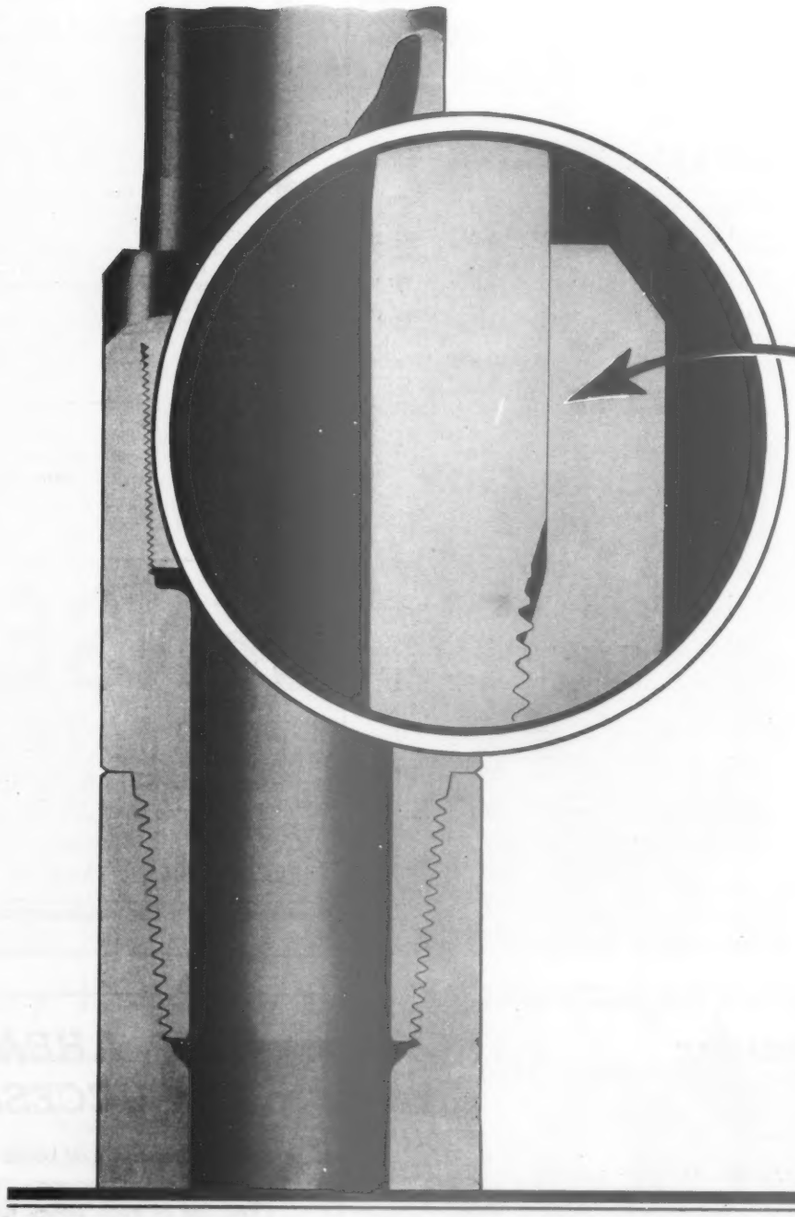

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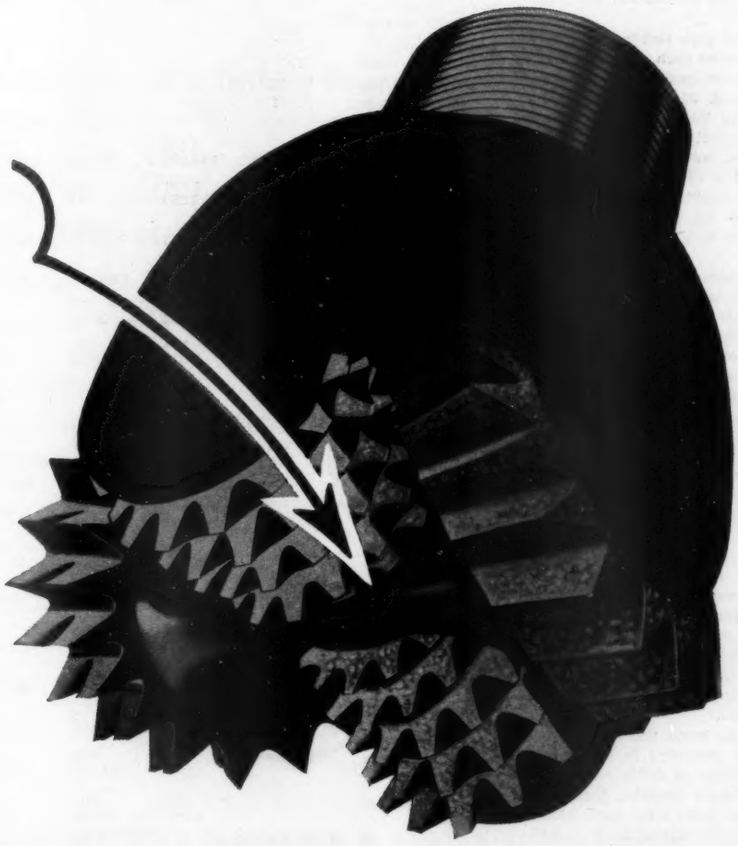

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ILLINOIS OPERATORS DISCOVER 13 NEW FIELDS IN FIRST HALF OF YEAR

By STAFF CORRESPONDENT

Outstanding in Illinois during the first 6 months of 1940 was the development of horizons and fields discovered late in 1939 which forced the state's production to a high point of 518,224 bbl. daily for the week ending June 29. Production for the first week of the year was 332,572 bbl., making a jump of 175,652 bbl. in the daily average production during the period. There were 1,825 tests completed during the half year.

The production trend was not continuously upward throughout the entire period, a peak of 455,000 bbl. daily being reached during March 16 followed by a sharp decline of 30,000 bbl. in a 2 weeks' period and then a leveling off until May 18, when the output of the Centralia field began to climb rapidly and forced the state's production over the 500,000-bbl. mark during the month of June.

White and Wabash counties were tied for the largest number of discoveries with three each, although White had the edge as it also had one small well which may or may not open a new pool. Jasper County had a pair of new pools and broke into the producing column for the first time since the start of the basin play. Coles, Edwards, Gallatin, Hamilton, and Washington counties each recorded a discovery and Wayne County had a wildcat well making 10 bbl. per day which may indicate a pool in the vicinity. The Hamilton County discovery was the first production for that area.

An outstanding discovery because of its implications rather than its production was the finding of oil in the Trenton lime in the Centralia field. The well was located in the southern portion of the pool where production from Benoist and Devonian was light and the fact that the well produced only 120 bbl. daily from a depth of 4,068 ft., is not causing Illinois operators to discount it entirely. During the recent Devonian development in the same pool, the wells in the southern part of the field were not particularly encouraging and yet when wells were completed in the northern part of the field on the better part of the structure, some of the largest wells in the state were obtained.

Biggest disappointment of the year was the failure to find large production on the Mattoon structure in Coles County. Several test holes had been drilled around the edges of the structure which indicated it had good prospects. However, when tested on the structure all the horizons except the McClosky proved to be unproductive. The drilling of a second well on the structure was necessary to obtain commercial production. A third well is now drilling and the area may yet prove to be of importance.

Development interest in the state was divided between the Devonian drilling campaign in Salem and Centralia fields and the drilling of fields located by discoveries in White and Wabash counties. Two hundred and thirty-six Devonian wells were successfully completed on the Clinton County side of the Centralia

ILLINOIS

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
ADEN:							
Daily average	180	177	298	174	173	244	
Month	5,581	5,146	9,274	5,228	5,358	7,341	37,928
ADEN—NORTH:							
Daily average	2,345	2,320	2,206	2,336	2,255	2,287	
Month	72,738	67,300	68,476	70,056	69,867	68,617	417,054
ALBION:							
Daily average	.....	.....	.....	293	1,160	1,444	
Month	.....	.....	.....	8,790	35,963	43,326	88,079
BARNHILL:							
Daily average	2,377	2,054	1,951	1,883	1,619	1,831	
Month	73,673	59,553	60,499	56,440	50,121	54,933	355,219
BARTELSO (Deep):							
Daily average	175	624	364	394	729	1,204	
Month	5,429	18,105	11,296	11,816	22,953	36,126	105,725
BOOS:							
Daily average	.....	.....	46	110	163	356	
Month	.....	.....	1,424	3,293	5,066	10,682	20,465
BOYLESTON:							
Daily average	1,063	1,279	1,353	1,617	2,042	2,401	
Month	33,023	37,062	41,961	48,500	63,295	72,025	295,866
BURNT PRAIRIE:							
Daily average	.....	186	60	78	126	189	
Month	.....	5,385	1,865	2,340	3,908	5,663	19,161
CENTRALIA:							
Daily average	5,159	6,744	13,590	25,720	38,162	88,975	
Month	159,791	195,775	420,592	771,638	1,183,079	2,669,241	5,600,116
CISNE:							
Daily average	1,881	1,899	1,744	1,574	1,471	2,171	
Month	58,280	55,097	54,062	47,294	45,527	65,133	325,393
CLAY CITY:							
Daily average	17,244	15,584	14,377	13,010	12,288	11,909	
Month	534,533	451,965	445,515	390,113	381,024	357,274	2,560,424
CORDES:							
Daily average	1,814	2,286	2,122	2,178	1,998	2,072	
Month	56,208	66,271	65,775	65,312	61,915	62,163	377,644
COWLING:							
Daily average	115	275	175	175	156	168	
Month	3,562	7,975	5,425	5,250	4,836	5,041	32,089
CRAVAT:							
Daily average	184	208	202	183	177	158	
Month	5,689	6,042	6,244	8,483	6,472	4,745	37,675
DALE:							
Daily average	.....	.....	54	56	256	1,481	
Month	.....	.....	1,678	1,672	7,937	44,436	55,723
DIX:							
Daily average	2,076	2,146	2,460	2,310	2,307	1,838	
Month	64,365	62,247	76,170	69,203	71,453	55,236	398,674
DUNDAS:							
Daily average	5,344	4,991	5,371	4,159	7,454	6,391	
Month	165,632	144,710	166,528	124,825	231,184	191,728	1,024,607
ENTERPRISE:							
Daily average	3,454	4,264	4,331	4,754	4,559	4,638	
Month	107,092	123,704	134,291	142,653	141,359	139,136	788,235
FAIRMAN:							
Daily average	660	649	685	545	520	439	
Month	20,439	18,837	21,223	16,344	16,135	13,145	106,123
FLORA:							
Daily average	229	284	249	209	240	251	
Month	7,094	8,269	7,737	6,214	7,431	7,528	44,273
GRAYVILLE:							
Daily average	517	220	251	234	124	163	
Month	16,030	6,384	7,770	7,011	3,828	4,889	45,912
GRIFFIN:							
Daily average	869	912	1,252	1,566	4,063	2,987	
Month	26,924	26,487	38,790	46,941	125,996	89,613	354,751
HOFFMAN:							
Daily average	15	4	18	104	139	209	
Month	479	129	559	3,124	4,300	6,269	14,860
IRON:							
Daily average	.....	782	1,730	5,168	4,041	3,910	
Month	.....	22,678	53,639	155,045	125,258	117,321	473,941
JUNCTION:							
Daily average	260	294	247	215	210	225	
Month	8,060	8,526	7,657	6,450	6,510	6,755	43,958

(Continued on Next Page)

DISCOVERIES IN ILLINOIS DURING FIRST HALF OF 1940

County—	Field	Company and farm	Location	Total depth	Producing formation— Depth to top in feet	Producing formation— Name	Initial prod. (bbl.)	Date of completion of discovery well	No. of wells in pool 7-2-40
Coles[4]	Mattoon	Carter Oil Co.'s No. 1 J. Seaman	SE NE SW 35-12n-7e	2,027	2,002	McClosky "sand"	121	6-40-40	1
Edwards	Albion	Noah & Morrison's No. 1 Barnes	SE NE NE 24-2s-10e	3,240	3,130	McClosky "sand"	132	3-26-40	12
Gallatin	Inman	Colbeck et al's No. 1 Duffey	NE NW NW 25-8s-9e	3,007	2,803	Rosiclare ss.	7½	4-9-40	1
Hamilton	Dale	Kingwood Oil Co.'s No. 1 Wilson	NW NW SE 6-6s-7e	2,695	2,662	Cypress	115	3-26-40	11
Jasper	Boos	Pure Oil Co.'s No. 1 Warren Consolidated	C E½ NE NW 33-6n-10e	2,847	2,822	McClosky "sand"	348	3-19-40	3
Jasper	West Liberty	Pure Oil Co.'s No. 1 M. Aldrige	C E½ NE NW 17-5n-10e	2,850	2,790	McClosky "sand"	1,422	6-4-40	2
Wabash	Lancaster	Riddle et al's No. 1 Seibert	NE NE NE 4-1n-13w	2,743	2,686	McClosky "sand"	500	4-2-40	13
Wabash	Maud	Lambert's No. 1 Sieler	SE SE SE 27-1s-13w	2,626	2,615	McClosky "sand"	192	6-18-40	1
Wabash	Mt. Carmel[1]	Delta Drilling Co.'s No. 1 Utter	SE SE NE 17-1s-12w	2,050	2,014	Cypress ss.	19	1-30-40	2
White	Burnt Prairie	Bishop, Harrington, Busch's No. 1 Griffin	SE SE SW 28-3s-9e	3,505	3,445	McClosky "sand"	103	1-23-40	6
White	Centerville	Sun Oil Co.'s No. 1 C. Brown	C S½ SE NW 2-4s-9e	3,375	3,341	Ste. Genevieve ls.	631	5-28-40	2
White	Iron	J. W. Carter et al's No. 1 O. Johnson	SW NW NE 25-6s-8e	2,528	2,485	Hardinsburg ss.	635	2-6-40	25
Washington	Irvington	Gulf Refining Co.'s No. 1 Buhl	C NW SE SW 23-1s-1w	1,538	1,519	Bethel ss.	683	7-2-40	1
Extension—									
White	Storms ext.	Bates & Lichlyter's No. 1 Aud	NE NE SW 27-6s-9e	2,764	2,328	Walterburg ss.	[3]	1-16-40	[7]75
Wells completed with small initial production which may open new pools—									
Wayne	.....	Lessing Aich's No. 1 Conrad Dickey	C S½ SE NE 3-1s-6e	3,300	3,172	McClosky "sand"	[5]10	6-18-40	1
White	.....	Kingwood Oil Co.'s No. 1 Martin	NW SW NE 13-7s-8e	2,248	2,244	Tarp Springs ss.	[6]36	7-2-40	1
Discovery well of Trenton production in the Centralia pool—									
Clinton	Centralia	Ames' No. 2 Hicks	SW NE SE 12-1n-1w	4,068	4,018	Trenton ls.	[5]120	7-2-40	1

[1]Early Mount Carmel field now called Mount Carmel (West). [2]Gas, million cubic feet. [3]Total number of wells in Storms field which includes two gas wells. [4]The Mattoon pool reopened. The discovery well of this pool was in the Cypress sandstone. The well produced for a short time and was abandoned. [5]Oil and water. [6]On pump.

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field and in addition there were 37 Devonian oil completions on the Marion County side. Four Bethel wells and one Trenton well were also completed in the Clinton-Centralia area. Production rose from 5,150 bbl. daily during January to 88,575 bbl. daily in June.

Of prime importance to the central basin was the failure of Pure Oil Co.'s deep test in the Clsne field. The well was drilled to the Devonian but failed to find oil and while it does not condemn the central basin entirely, additional prospecting will be necessary to prove the existence of deep production in the area.

A development in Wayne County was the linking of the Aden and North Aden pools through the drilling of five wells. Future drilling in the immediate vicinity will not be extensive. The Boyleston (W. Fairfield) pool experienced a mild boom when an extension well was completed after long delays in drilling. Nineteen wells were added to the field during the 6 months and production was boosted from 1,063 bbl. daily at the start of the year to 2,401 bbl. daily during June.

Only four of this year's discoveries have had any extensive development. The Albion pool in Edwards County, discovered by Noah and Morrison's No. 1 Barnes, SE NE NE Section 24-2s-10e, now has 12 wells, 7 of them in the McClosky (the pay formation in the discovery well), 7 in the Waltersburg sand, and 2 in the Bridgeport sand.

Hamilton County Discovery

The Dale pool, Hamilton County's discovery, Kingwood Oil Co.'s No. 1 Wilson, NW NW SE Section 6-6s-7e, was completed March 26 for 115 bbl. from the Cypress sand at 2,662 ft. There are now 11 wells in the field, all producing from the Weiler sand. One of the two wildcats drilled recently in the vicinity found oil in the McClosky lime. At first it was believed that the field was located on a large structure but subsequent work has led to the belief that it is a local feature on a major fold and other fields are expected to be found under similar conditions. Production from the pool during June was 1,481 bbl. daily.

The Boos and West Liberty pools, discovered by the Pure Oil Co., gave Jasper County its first production, something that county has been looking forward to since the Illinois basin play started. Discovery well in Boos was Pure's No. 1 Warren Consolidated, E½ NE NW Section 33-6n-10e, which made 348 bbl. initially from McClosky lime at 2,847 ft. Two wells have been drilled since the discovery and production from the area now is 356 bbl. daily. Pure's No. 1 M. Aldridge, E½ NE NW Section 17-5n-10e, made 1,422 bbl. when it was completed in the McClosky lime at 2,790 ft. early in June. A second well has been completed in the pool.

The Lancaster pool in Wabash County was discovered early in April with 500 bbl. a day being obtained from the McClosky lime. Since then, 12 other McClosky wells have been drilled and the field had a daily average production of 1,513 bbl. during the last month.

First discovery of the year in White County was the Irons pool in Section 25-6s-8e. Flowing production was obtained from the Hardinsburg sand at 2,485 ft., early in February and despite the severe ground conditions, development on a fairly large scale got under way. Since then, 23 Hardinsburg wells and 1 McClosky well have been put on production. Present production is 3,915 bbl. daily.

Progress along the Wabash was characterized by the large number of producing horizons proven to be productive. In the Mount Carmel field in Wabash County, the Biehl and Weiler sands and the Rosiclare lime have been proven productive, production in Keensburg is being obtained from the Biehl, Palestine, and Weiler sands and in the Griffin field the Biehl, Tar Springs, Weiler, Bethel, and McClosky are producing. In addition to the pay zones mentioned above, White County is obtaining production from the Hardinsburg, Waltersburg, and Rosiclare formations. Active wildcatting in the area is a little more than a year old and it has

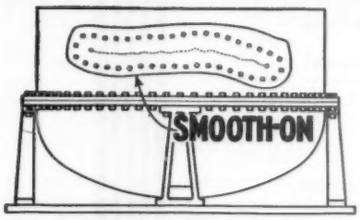
(Continued on Page 146)

ILLINOIS (Continued)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
KEENSBURG:							
Daily average	5,187	5,160	5,894	6,242	6,023	5,017	
Month	160,712	149,615	182,732	187,244	186,725	150,508	1,017,536
LANCASTER:							
Daily average	.....	.....	129	264	1,457	1,513	
Month	.....	.....	3,999	7,920	45,170	45,383	102,472
LEECH:							
Daily average	346	273	489	462	348	709	
Month	10,688	7,921	15,202	13,867	10,783	21,269	79,730
LOUDEN:							
Daily average	71,039	74,267	74,607	71,711	74,787	72,429	
Month	2,202,274	2,153,891	2,319,925	2,151,372	2,318,403	2,172,878	13,318,743
MILL SHOALS:							
Daily average	1,450	1,393	1,406	1,494	1,480	1,479	
Month	44,969	40,403	43,578	44,803	45,858	44,358	263,969
NEW HARMONY:							
Daily average	.....	340	312	849	941	1,007	
Month	.....	9,868	9,685	25,460	29,151	30,202	104,366
NOBLE:							
Daily average	3,830	4,377	5,260	5,532	5,756	5,618	
Month	118,767	126,950	163,073	166,030	178,440	168,552	921,812
NOBLE—NORTH:							
Daily average	2,266	2,300	2,176	2,242	2,184	2,176	
Month	70,290	66,734	67,517	67,249	67,796	65,278	404,864
NOBLE—SOUTH:							
Daily average	166	201	148	240	186	194	
Month	5,134	5,811	4,577	7,200	5,788	5,825	34,335
OLNEY:							
Daily average	805	625	484	482	668	579	
Month	24,946	18,128	15,026	14,472	20,660	17,369	110,601
PATOKA:							
Daily average	1,218	1,200	1,196	1,198	1,118	1,162	
Month	37,723	34,835	37,079	35,948	34,724	34,852	215,161
PHILLIPSTOWN:							
Daily average	101	147	134	115	96	99	
Month	3,131	4,263	4,145	3,453	2,971	2,974	20,937
ROACHES:							
Daily average	353	394	496	697	758	645	
Month	10,941	11,426	15,402	20,907	23,521	19,347	101,544
SALEM:							
Daily average	213,126	248,024	258,497	249,298	246,355	230,613	
Month	6,607,139	7,192,619	8,013,470	7,479,164	7,636,976	6,918,396	43,847,764
SANDOVAL (Deep):							
Daily average	2,493	2,594	1,986	2,389	1,828	2,011	
Month	77,318	75,219	61,570	71,641	56,649	60,332	402,729
ST. JAMES:							
Daily average	2,375	2,302	2,908	3,427	3,743	3,851	
Month	73,679	66,736	90,091	102,704	116,106	115,527	564,843
STOKES:							
Daily average	642	468	358	353	344	406	
Month	19,910	13,584	10,550	10,550	10,654	12,187	77,435
STORMS:							
Daily average	1,088	2,265	3,224	2,528	3,247	3,984	
Month	33,748	65,688	99,981	75,819	100,625	119,525	495,386
TONTI:							
Daily average	7,617	8,738	10,115	6,853	6,327	6,418	
Month	236,154	253,386	313,578	205,602	196,122	192,532	1,397,374
STOY:							
Daily average	.....	611	488	520	663	582	
Month	.....	17,723	15,125	15,589	20,558	17,458	86,453
BARTELSO (Old):							
Daily average	188	247	239	307	456	431	
Month	5,828	7,163	7,409	9,210	14,136	12,936	56,682
BRIDGEPORT:							
Daily average	3,429	3,733	3,695	3,958	4,703	4,238	
Month	106,309	108,253	114,550	118,740	145,804	127,152	720,808
CASEY:							
Daily average	700	754	779	785	948	837	
Month	21,700	21,857	24,152	23,549	29,394	25,102	145,754
DUPO:							
Daily average	526	460	450	444	449	429	
Month	16,306	13,340	13,950	13,320	13,919	12,874	83,709
PLYMOUTH:							
Daily average	304	344	341	367	365	338	
Month	9,415	9,990	10,577	11,014	11,306	10,132	62,434
ROBINSON:							
Daily average	2,044	2,348	2,329	2,338	2,808	2,461	
Month	63,353	68,093	72,209	70,150	87,046	73,821	434,672
MISCELLANEOUS:							
Daily average	394	475	465	401	474	500	
Month	11,908	13,789	14,408	12,041	14,680	15,009	81,835
Daily average	367,644	412,239	433,903	434,635	454,991	487,671	
First 6 months 1940	11,396,964	11,954,932	13,451,010	13,039,053	14,104,740	14,630,144	78,576,843
First 6 months 1939	4,282,471	4,312,342	5,110,586	5,303,866	6,692,633	7,004,850	32,706,748
First 6 months 1938	1,175,059	1,125,318	1,251,558	1,320,676	1,463,016	1,471,628	7,807,255

Miscellaneous pools and their total production (in barrels) for the first 6 months of 1940 were: Calvin, 5,183; Dubois, 10,361; East Flora, 7,656; Ina, 936; Inman, 1,656; Iola, 1,537; Marcoe, 3,119; Mount Carmel, 3,089; Mount Erie, 2,225; Schnell, 12,498; Sorento, 1,978; Stewardson, 2,519; Whittington, 4,282; Carlyle, 15,350; Womac, 9,446. Total production, 81,835 bbl.

Emergency Repairs



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Semiannual Review

CALIFORNIA PRODUCTION IS STEADY WITH NO IMPORTANT FINDS

By L. P. STOCKMAN

There were no important discoveries recorded in California during the first half of the current year but three minor accumulations of secondary importance and a new deep zone were found during the period in question. As a result of the failure of prospectors to discover one or more fields of primary importance, California's crude-oil reserves were reduced approximately 100,000,000 bbl. during the first 6 months of 1940. Crude-oil production during the first 6 months of 1940 was on about a par with the output during the first half of last year but was somewhat lower than production during the last 6 months of 1939. Production last year totaled 224,354,048 bbl. and, if the present ratio is maintained during the remainder of 1940, production during the present year should approximate 220,000,000 bbl. which would be at about the same rate as 1939. Crude-oil production during the first 6 months of 1940 declined from 611,626 bbl. per day during January to 602,334 bbl. daily during March but increased again to 613,448 bbl. daily during April and continued at about this rate during May and June. The Wilmington field which was aggressively drilled last year and which yielded 82 new wells during the first 6 months of 1940 headed the production list followed by Midway-Sunset, Kettleman North Dome, Long Beach, Ventura Avenue, Huntington Beach, Santa Fe Springs, Coalinga, and Montebello in the order named. The Coalinga field of Fresno County, due to aggressive development in the Northeast and Southeast Coalinga fields, showed a substantial increase during the first 6 months of 1940 but Montebello on the other hand registered a large decline. The Santa Maria Valley field of Santa Barbara County in the coastal district produced more crude oil in June than during January due to increased allowables. This field, after several months of restricted activity, went back on steady production April 1, 1940, under an agreement whereby all major companies agreed to resume purchases under certain conditions. This agreement effected by a committee of independent operators after several months of effort gave each well a definite allotment which represents its pro rata share of a total nomination of 12,080 bbl. daily. Field production has been consistently above this amount all during the period since operation of the agreement due to several wells of operators who refused to conform with the agreement.

New Discoveries

El Rey Oil Co. found a new accumulation of undetermined potentiality in No. 1 Westmore Land northwest of the northern tip of the Rosecrans field of Los Angeles Basin in Section 2-3-14. This well which is located along the Newport-Beverly shear zone was finished early in June pumping 120 bbl. of 32.5-gravity oil cutting 5 per cent. Bottom of the hole is 9,063 ft. but the effective depth is 9,000 ft. as a plug was put in the bottom of the hole before being placed on the beam. The significance that attaches to this wildcat lies in the fact that No. 1 Westmore Land may have found a new productive interval along this major line of folding even though initial daily production was small. The well failed to result in a natural flow after being swabbed for several days and installation of a compressor also failed to result in commercial production. It did, however, show production when put on the beam which may indicate that it is an edge well in a normal accumulation. Casing consists of a 7-in. water string that required two cement jobs before an effective water shutoff was made and 425 ft. of 5-in. liner landed at 9,000 ft. and including 366 ft. of perforated. Fluid level was found in this well at 7,200 ft. and the hole contains 8,573 ft. of 2½-in. tubing with packer at 8,380 ft. No. 1 Westmore Land is located in an area that has been prospected for a number of years without success. Within a radius of 2 miles a total of 19 wildcats have been drilled between 1920 and 1940 but none of these previous tests showed any commercial production. None of these wildcats were carried down below 6,500 ft. and therefore they do not have any effect on the Westmore Land sand found below 8,632 ft.

Tide Water Associated Oil Co. appears to have discovered an accumulation of low gravity oil in the Pyramid Hills section of Kings County in the San Joaquin Valley as its No. 1 West Slope in Section 20-24-18 was completed early in June pumping 20 bbl. per day of 16.4-gravity oil cutting 4 per cent. No. 1 West Slope was drilled as a structure survey hole to 2,051 ft. but when nothing was found at this depth the hole was plugged back to 945 ft. to test an oil sand cored at that point. This well is one of two core holes drilled in the area and while the extent of the structure or accumulation is conjectural it would appear to be of a minor character from a production standpoint. No. 1 West Slope has a string of 6⅝-in. casing cemented at 850 ft. which leaves 95 ft. of formation open to production. George F. Getty, Inc., and Pacific Western Oil Co. hold together 25 per cent interest in the discovery in accordance with an agreement signed between these two concerns and Tide Water Associated Oil Co. a few months ago. No. 1 Pyramid fee, the first core hole drilled by Tide Water Associated Oil Co. in this district was suspended at 587 ft. but was later deepened to 1,000 ft. and abandoned when it failed to show any oil sand. No. 1 Pyramid fee is located in Section 18-24-18 about 2 miles northwest of the discovery well. Acreage in this district appears to be held entirely by Tide Water Associated Oil Co.

Republic Petroleum Co. found a new accumulation of heavy crude oil in the west end of the Midway-Sunset field of Kern County in the San Joaquin Basin in the middle of June when No. 1 C. H. in Section 18-32-23 was completed pumping 150 bbl. of 16.4-gravity

(Continued on Page 146)

PRODUCTION OF CRUDE BY MONTHS IN CALIFORNIA

Month—	1940 Total bbl.	1940 Dly. av.	1939 Total bbl.	1939 Dly. av.
January	18,960,399	611,626	19,274,079	621,744
February	17,642,640	608,367	17,418,952	622,105
March	18,672,342	602,334	19,283,785	622,058
April	18,403,433	613,448	18,403,853	613,462
May	19,019,257	613,524	19,073,972	615,289
June	18,539,758	617,992	18,221,295	607,376
Total	111,237,829	611,197	111,675,936	616,994

TOTAL FLUID STOCKS OF PETROLEUM HELD IN PACIFIC COAST TERRITORY

(Barrels)

1940—	Refinable crude	Heavy crude	Fuel oil	Diesel and gas oil	Natural gasoline	Gasoline	All other stocks*	Total all stocks
January 1	35,136,501	13,303,091	66,886,434	9,671,299	1,516,033	16,128,052	9,293,838	151,935,248
January 31	35,457,793	13,378,972	65,990,389	9,099,950	1,662,478	16,918,562	9,056,398	151,564,542
February 29	35,995,435	13,405,906	65,648,712	8,980,220	1,747,755	17,678,049	9,753,212	153,209,289
March 31	35,804,861	13,499,792	64,947,259	9,326,881	1,875,107	17,572,852	9,953,987	152,980,739
April 30	35,835,610	13,520,733	65,346,750	9,679,406	2,020,627	17,645,918	10,079,917	154,128,961
May 31	35,721,588	13,279,151	65,101,337	9,810,933	2,210,560	17,278,777	10,423,468	153,825,814

*Includes naphtha distillates.

CALIFORNIA PRODUCTION OF CRUDE OIL BY DISTRICTS, JANUARY TO JUNE, INCLUSIVE, 1940

	January (bbls.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
Northern fields—							
Arvin	79,392	67,419	70,388	59,854	62,438	61,418	400,909
Beiridge—North	349,880	329,845	343,397	327,771	330,578	318,180	1,999,651
Beiridge—South	56,763	56,816	61,192	60,303	65,343	61,952	362,369
Canal	181,030	166,430	175,716	176,851	179,115	178,470	1,057,612
Canfield Ranch	1,845	1,554	1,481	1,684	1,237	1,192	8,993
Coalinga	676,003	625,527	718,532	766,550	824,617	789,547	4,400,776
Cole's Levee	73,409	88,241	103,724	108,257	119,494	118,982	612,107
Edison	68,354	61,083	69,924	68,602	72,303	69,128	409,394
Elk Hills	326,874	357,548	385,841	372,622	386,384	371,225	2,200,494
Fruitvale	187,534	169,065	178,500	176,324	174,238	160,800	1,045,461
Greeley	100,591	91,957	106,652	107,299	115,781	115,230	637,510
Kern River	361,140	323,561	341,532	352,329	370,820	357,984	2,107,366
Kettleman North Dome	1,495,418	1,477,167	1,470,560	1,412,583	1,454,411	1,404,454	8,714,593
Lost Hills	129,189	120,518	129,916	126,081	127,458	112,896	746,058
McKittrick	108,437	100,326	110,166	107,077	109,916	105,991	641,913
Midway-Sunset	1,621,485	1,509,260	1,616,222	1,550,483	1,633,057	1,537,200	9,467,707
Mountain View	231,441	207,424	207,187	218,734	205,425	197,512	1,267,723
Mount Poso	302,047	279,365	292,472	292,745	312,880	293,543	1,773,052
Paloma	5,605	5,323	5,636	5,576	5,421	5,994	33,555
Rio Bravo	239,983	241,329	247,882	256,266	248,335	242,465	1,476,260
Round Mountain	239,921	220,248	228,651	218,599	221,843	216,662	1,345,924
Strand	40,651	33,115	43,899	41,913	50,585	48,791	258,954
Ten Section	262,890	244,089	269,737	266,665	277,311	285,810	1,606,502
Tupman	30,147	30,819	33,683	49,174	50,346	55,606	249,775
Wasco	34,567	42,030	40,012	43,971	49,198	51,912	261,690
Wheeler Ridge	9,770	9,205	9,555	9,444	9,651	9,180	56,805
Coastal fields—							
Capitan	62,664	56,680	59,386	55,956	56,236	52,508	343,430
Elwood	121,472	110,791	118,812	111,802	112,016	108,840	683,733
Rincon	127,801	109,753	116,594	121,778	122,912	116,822	715,660
San Miguelito	90,735	85,689	94,472	95,362	97,314	103,266	566,838
Santa Barbara	8,151	5,407	10,251	7,384	6,859	7,904	45,856
Santa Maria	105,797	102,768	143,233	116,589	171,639	188,225	828,251
Santa Maria Valley	333,668	339,690	384,542	550,765	529,393	497,040	2,635,098
Summerland	887	668	862	714	671	712	4,514
Ventura Avenue	1,148,054	1,077,185	1,063,525	979,286	1,050,400	1,020,039	6,338,489
Ventura-Newhall	220,101	203,819	228,699	216,170	229,186	218,492	1,316,467
Watsonville	775	725	775	750	775	750	4,550
Southern fields—							
Brea-Olinda	174,036	163,894	174,147	175,262	175,341	176,611	1,039,291
Coyote—East	94,265	93,429	103,568	118,488	125,197	117,510	652,457
Coyote—West	217,943	176,408	201,938	186,497	195,911	198,994	1,177,691
Dominguez	608,424	569,458	603,003	615,065	658,544	659,550	3,714,044
El Segundo	83,664	74,697	73,749	72,304	71,616	68,437	444,467
Huntington Beach	849,833	799,904	846,936	810,209	782,750	779,285	4,868,917
Inglewood	401,305	359,485	398,806	373,192	379,382	362,670	2,274,840
Lawndale	1,320	1,272	1,375	1,201	1,420	1,361	7,949
Long Beach	1,427,733	1,305,148	1,373,136	1,345,668	1,352,771	1,340,318	8,144,772
Los Angeles-Salt Lake	16,810	14,865	16,351	15,675	17,193	15,640	96,534
Montebello	830,166	688,782	631,017	621,750	673,637	657,871	4,103,232
Playa Del Rey	135,689	122,922	131,442	131,434	132,127	123,709	777,323
Potrero	49,204	56,161	52,746	56,495	52,512	51,380	318,498
Richfield	271,703	253,741	286,031	279,950	288,486	256,650	1,636,561
Rosecrans	293,783	290,885	301,333	283,817	312,299	306,158	1,788,275
Santa Fe Springs	803,747	749,366	802,143	780,399	805,812	797,522	4,738,989
Seal Beach	224,992	219,423	226,911	216,420	219,957	215,643	1,323,346
Torrance	412,103	357,148	373,074	349,361	348,508	326,549	2,166,743
Whittier	30,059	29,181	31,025	29,105	19,916	23,788	163,074
Wilmington	2,599,149	2,365,032	2,560,003	2,506,821	2,570,292	2,573,490	15,174,787
Total production	18,960,399	17,642,640	18,672,342	18,403,433	19,019,257	18,539,758	111,237,829
Daily average	611,626	608,367	602,334	613,448	613,524	617,992	611,197

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PRECISION GEARED

We are reminded by this Semi-Annual Review that supply service for a meticulous industry can be engineered for efficiency and economy just as truly as a refinery, or a pipe line, or any other project.

To the convenience of Frick-Reid stores we add a flexibility of service indispensable in emergencies, and likely to reduce cost and delay for customers under any circumstances.

As a further measure of practical efficiency Frick-Reid engineering includes eternal vigilance as to the quality of supplies and equipment handled, and provides a character of service that is loyal without precedent. It considers the importance of integrity and stability, the necessity for dependable repair parts service at local stores, and other sound principles likely to earn the preference of careful buyers.

And such preference it is that maintains a structure which defends the interests of an industry on many fronts—the most important industry in America.

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...are made by the Gilmore Wire Rope Division of the Jones & Laughlin Steel Corporation, engaged in the manufacture of iron and steel for more than 87 years.

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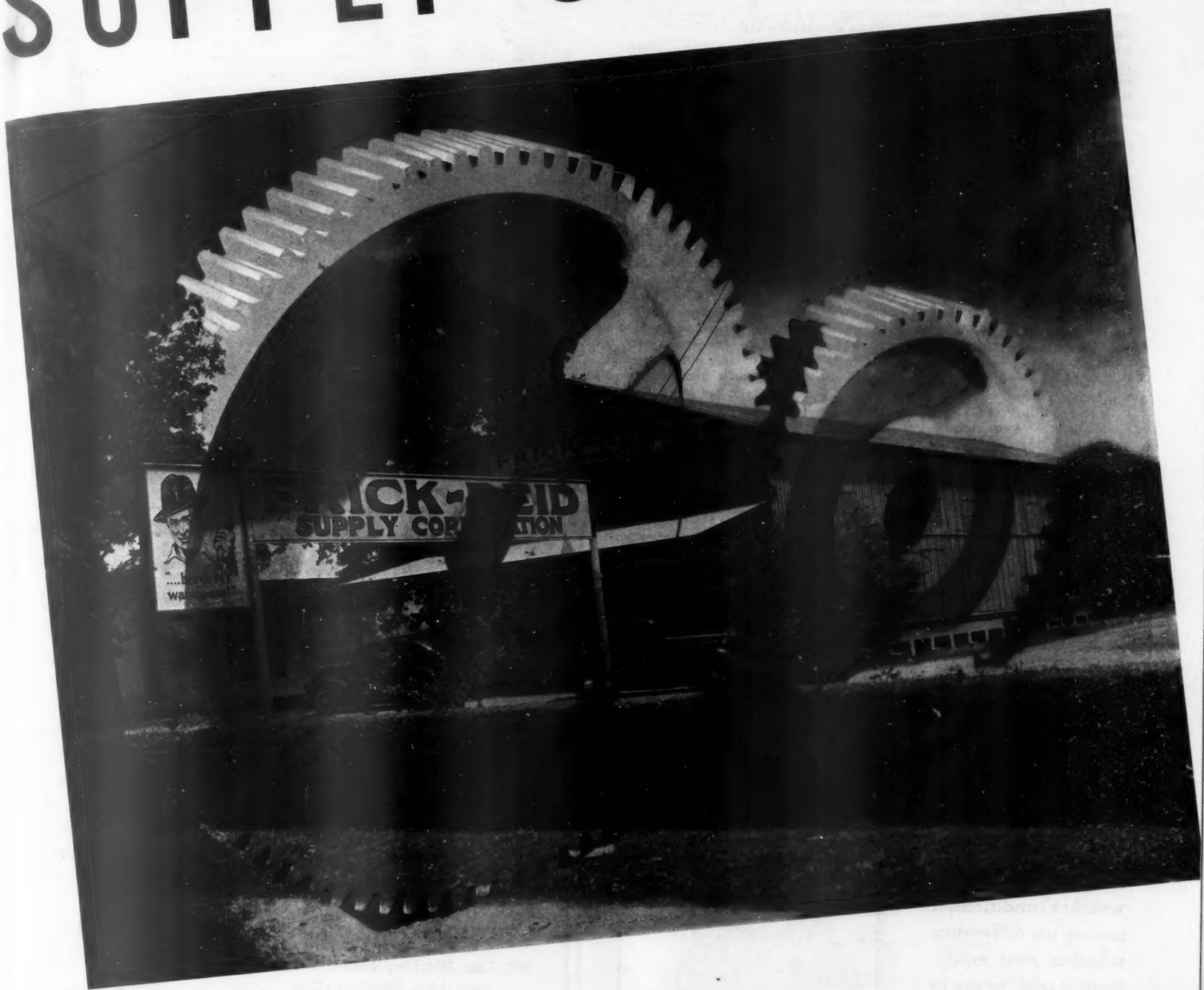

Supply Corporation

oil cutting 3 per cent daily from 1,900 ft. This new well, which was started as a structure survey hole, cored 50 ft. of oil sand at 1,850-1,900 ft. during the course of work and after the well had been carried down to 2,466 ft. without finding any additional oil sand it was plugged back to 1,900 ft. and put on the beam. Production is coming probably from the Santa Margarita formation of upper Miocene age which has proved quite productive in the Mountain View field and other similar districts. This discovery is generally considered to be a localized accumulation of limited extent. Republic Petroleum Co. holds a total of 1,320 acres adjacent to the well and of this total 320 acres are owned in fee. Chanslor-Canfield Midway Oil Co. owns all other surrounding acreage and for this reason it is believed that any production developed will be restricted to these two operators. All holdings are in large blocks and drilling operations will therefore be along well established conservative lines. The Midway-Sunset field occupies a unique position in the California oil industry because of the several productive areas contained within its contours, the several gravities of crude oil produced and different types of structures producing. Gravity of oil ranges from 12° to 30° and productive depths range from 1,400 ft. to about 5,000 ft.

Bartholomae Oil Corp. proved the existence of a new deep productive zone in the northwest end of the East Coyote field of Orange County in Los Angeles Basin late in June by completing No. 9 Stern in Section 22-3-10 pumping 172 bbl. of clean 26.8-gravity oil per day from 6,580 ft. Several days after completion, this deep zone discovery well began flowing 500 bbl. per day of clean 25.3-gravity oil and production has been holding up in good shape. The 8⅝-in. water string was landed and cemented in this well at 4,100 ft. and the 6⅝-in. liner with which the well was completed was landed on bottom and cemented through perforations at 5,600 ft. Previously the East Coyote field had produced from depths ranging from 2,700 to 4,155 ft. The East Coyote field consists of a normal anticline and production to date has come from rocks of Pliocene age. The discovery well in the East Coyote field was No. 1 Anaheim Union Water of Tide Water Associated Oil Co. which was completed in March 1911 flowing 600 bbl. of clean 23.9-gravity oil per day from 3,353 ft. Property adjacent to No. 1 Stern of Bartholomae Oil Co., and the new deep zone discovery, is held by Standard Oil Co. and Union Oil Co. and both should have acreage within productive contours.

CALIFORNIA

Field Operations by Months for First Half of 1940

Month—	Wells comp. Number	Wells comp. Bbl. daily	Abd.
January	82	64,662	6
February	55	57,017	32
March	72	47,064	8
April	80	61,349	19
May	90	90,680	15
June	73	75,465	13
First half year 1940	452	396,237	93
First half year 1939	382	345,716	137
Difference	70	50,521	44
Mo. ave. first half year 1940	75	66,040	16
Mo. ave. first half year 1939	64	57,619	23
Difference	11	9,421	7

Field Operations

Drilling operations were slightly higher than last year but were still substantially below the average of past years. The number of new wells exceeded the number completed during the first half of last year and the aggregate initial daily production of new wells finished during the first 6 months of 1940 was likewise larger than similar data last year. There was a slackening off in completions early in the year but with increased drilling the number of wells increased in March and wound up strong in June. Producing wells showed a consistent gain from month to month and the number producing during June 1940 was the largest number of producing wells that the state has ever had. In addition to those wells actually on production there are about 4,100 additional wells that have been standing shut in because of curtailment. Some of these curtailed wells have been shut in for almost 10 years and they will probably be kept on the inactive list as they are located on fee-owned acreage.

Illinois Fields

(Continued from Page 140)

been found that many of the fields have potential producing horizons other than those being developed at the present time. The New Harmony field in Township 5s-14w, originally produced from the Waltersburg sand but deepening of a well slightly off structure indicated McClosky production. At the end of June there were 11 McClosky producing wells in the pool and 1 Rosiclare well.

Completions by Counties

County—	Comp.	Prod.	Dry	Gas
Bond	7	1	4	1
Brown	1	0	1	0
Clark	11	45	6	1
Clay	25	2,960	9	0
Clinton	244	252,583	25	0
Coles	6	202	4	0
Crawford	7	25	6	0
Edgar	4	0	4	0
Edwards	27	2,068	10	1
Effingham	2	0	2	0
Fayette	305	53,180	25	0
Ford	1	0	1	0
Franklin	1	0	1	0
Gallatin	13	168	9	0
Hamilton	12	3,854	1	0
Jasper	8	2,033	4	0
Jefferson	15	940	5	0
Lawrence	15	29	8	6
Madison	3	0	3	0
Marion	640	717,670	32	1
Massac	1	0	1	0
McDonough	3	0	3	0
Monroe	13	584	7	0
Montgomery	4	0	4	0
Pike	3	0	3	0
Randolph	3	5	2	0
Richland	56	17,293	3	0
Saline	1	0	1	0
Shelby	4	22	3	0
St. Clair	4	20	3	0
Tazewell	2	0	2	0
Vermilion	1	0	1	0
Wabash	81	10,899	18	0
Washington	27	704	8	0
Wayne	85	18,558	14	0
White	158	22,204	23	5
Williamson	5	0	5	0
Schuyler	5	0	5	0
Lee	1	0	1	0
Macon	2	0	2	0
Christian	1	0	1	0
Jersey	2	0	2	0
Cass	1	0	1	0
Hancock	1	0	1	0
Henry	1	0	1	0
Total	1,812	1,106,017	275	15

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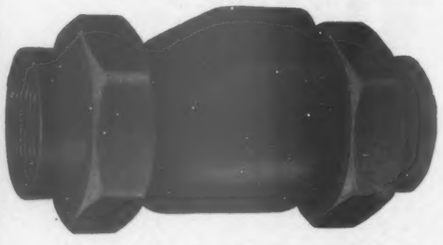
CATAWISSA
UNION SWING CHECK VALVES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250 Pounds Working Steam Pressure
400 Pounds Oil-Water-Gas
Tested to 1000 Lbs. Non Shock Hydrostatic Pressure

Catawissa No. 210 Swing Check Valves have Forged Steel Union Connections at both ends. Eliminates additional Union and Nipple in outlet or inlet end of line. Line can be broken without loss of contents.

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600 Lbs. Working Steam Pressure
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Catawissa No. 600 Union Swing Check Valves are made of Forged Steel for High Temperatures and extreme High Pressures.

Are designed especially for Boiler Feed lines and properly installed will outlast the life of the Boiler.

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CATAWISSA, PA., U.S.A.
MID-CONTINENT DISTRIBUTORS—OIL WELL SUPPLY CO.

MONTAGUE CO. DISCOVERIES CENTER OF NORTH TEXAS ACTIVITY

By R. MARNE SANFORD

The past 6 months featured one of the most active and extensive exploratory drilling campaigns in North Texas in many years. The advent of the Fort Worth basin early in the year precipitated a wildcat drilling program for the upper tier of Texas counties such as has not been seen since the days of the Burkburnett boom. The work resulted in the discovery of several new fields and the abandonment of many deep wildcat tests.

With the opening of Montague County's two new fields in late February and early March the Fort Worth basin play spread southward through Wise and Denton counties and even down into Tarrant and Johnson counties. Thousands of acres of land never before leased were taken up by major companies and independent operators alike in an intensive campaign.

By the middle of the summer the active lease work had considerably subsided and geophysical exploration commenced on many of the blocks in the southern part of the basin. Clay and Montague counties, where the play started, were already under an extensive drilling program as the exploration work is completed. New deep wildcat locations are being staked weekly throughout the entire area.

Development work in several fields, namely the Hull-Silk, K.M.A. and Walnut Bend, together with the increased activity of the Fort Worth basin play, pushed the total completions for both North and West Central Texas for the past half-year period considerably above the total for the corresponding period a year ago. As of July 1, 1940, there were 1,571 completions listed as against 1,195 for July 1, 1939. An increase of 376 com-

(Continued on Next Page)

WEST CENTRAL TEXAS

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
BROWN COUNTY:							
Daily average	1,354	1,430	1,473	1,490	1,475	1,461	
Month	41,967	41,457	45,651	44,709	45,718	43,830	263,332
CALLAHAN COUNTY:							
Daily average	1,034	1,120	1,192	1,233	1,218	1,211	
Month	32,054	32,482	36,959	36,999	37,763	36,330	212,587
COLEMAN COUNTY:							
Daily average	1,181	1,226	1,275	1,333	1,517	1,502	
Month	36,626	35,566	39,517	39,999	47,016	45,060	243,784
COMANCHE COUNTY:							
Daily average	302	316	366	346	327	323	
Month	9,364	9,174	11,342	10,366	10,123	9,690	60,059
EASTLAND COUNTY:							
Daily average	2,581	2,639	2,567	2,584	2,538	2,511	
Month	80,024	76,540	79,571	77,524	78,694	75,330	467,683
ERATH COUNTY:							
Daily average	66	65	68	64	71	69	
Month	2,055	1,874	2,119	1,926	2,216	2,070	12,260
FISHER COUNTY:							
Daily average	2,435	2,602	2,569	2,435	2,474	2,448	
Month	75,485	75,459	79,640	73,038	76,706	73,440	453,768
HASKELL COUNTY:							
Daily average	51	53	56	57	50	53	
Month	1,589	1,548	1,725	1,723	1,555	1,590	9,730
JONES COUNTY:							
Avoca—							
Daily average	1,417	1,414	1,428	1,570	1,418	1,403	
Month	43,938	41,000	44,261	47,101	43,958	42,090	262,348
Griffin—							
Daily average	1,663	1,739	1,743	1,898	1,689	1,672	
Month	51,553	50,422	54,032	56,945	52,368	50,160	315,480
Miscellaneous—							
Daily average	4,774	5,086	4,928	5,139	4,874	4,828	
Month	147,989	147,506	152,757	154,159	151,094	144,840	898,345
PALO PINTO COUNTY:							
Daily average	374	379	392	364	361	358	
Month	11,600	10,985	12,149	10,917	11,194	10,640	67,485
SHACKELFORD COUNTY:							
Ivy—							
Daily average	1,697	1,637	1,730	1,595	1,561	1,546	
Month	52,607	47,472	53,615	47,854	48,391	46,380	296,319

(Continued on Page 159)

DISCOVERIES IN NORTH TEXAS DURING FIRST HALF OF 1940

County, location, and discovery well—	Date	Depth	Gage	Formation	No. of wells	Name of pool	Remarks—
Jack—Cooper-Steed's No. 1 W. J. Mathis, J. H. Nesmith Sur., Abst. 1562, 4 miles E of Bryson field	Feb. 14	2,563-84	250 bbl./24 hrs.	Bryson sand	2	Cooper-Steed	
Montague—Sinclair Prairie Oil Co.'s No. 1 W. B. Howard, W. Wallace Sur., 2 miles W of Bonita	Feb. 26	5,241-49	2,116 bbl./day	Bend of Penn.	4	Bonita	Only first well produces from 5,250-ft. level. Other level at 5,400 ft.
Montague—W. B. Omohundro's No. 1 Wilmer Seay, NW cor. S½ N½ Sec. 32, Blk. 4, H.& T.C. Sur., 4 miles S of Ringgold	Mar. 11	5,690-5,704	1,920 bbl./day	Bend of Penn.	3	Seay	
Baylor—Hall-Jordan's No. 1 F. C. Green, C N½ SE 40 acres, J. E. Hix Sur., 4 miles SE of Seymour field	Apr. 1	3,061-64	184 bbl./6 hrs.	Palo Pinto lime of Penn.	2	Hall-Jordan	
Wichita—Fain-McGaha Oil Corp.'s No. 16-E Griffin, W. H. Spillers Sur., SW part of K.M.A. field	Apr. 15	4,352-89	2,450 bbl./day	Ordovician (Ellenburger lime)	1	K.M.A. deep	New deep horizon for K.M.A. field.
Archer—Walter Gant's No. 1 A. Vogtsberger, Blk. 3, German Emmigration Lands Sur., 7 miles S of Wichita Falls	June 8	4,730 T.D.	Est. 110 B.O.P.D. (still tstg.)		1	Gant	

DISCOVERIES IN WEST CENTRAL TEXAS DURING FIRST HALF OF 1940

County, location, and discovery well—	Date	Depth	Gage	Formation	No. of wells	Name of pool	Remarks—
Callahan—A. A. Hutton's No. 1 A. A. Slaughter NW SE Sec. 7, Deaf & Dumb Asylum Lands Sur.	Jan. 5	380 T.D.	40 bbl./day pmpg.	Cisco series of Penn.	7	Slaughter area of North Putnam district	
Taylor—Tal Vez Oil Co.'s No. 1 M. D. Richards, SE SW Lot 10, Guadalupe S.C.L. Sur., Lge. 120, just south of town of View	Jan. 30	2,329-95	310 bbl./day	Cisco series of Penn. age	1	South View	South of the View gas field.
Coleman—Charles E. Berry's No. 1 Dibrell, south part of Sec. 265, Joseph Hix Sur.	Feb. 14	2,692 T.D.	20 bbl./day	Straw series of Penn. age	1	Gayle	
Haskell—K. B. Nowles' No. 1 Pardue, Sec. 1, S.F.I.W. Sur., south part of county	Feb. 15	3,394-3,404	30 bbl./day pmpg.	Palo Pinto lime of Penn	2	Nowles	Second well made small well and extended field 1 mile to SW.
Jones—T. D. Humphrey's No. 1 W. V. Triplett, SE SE J. J. Hughes Sur.	Apr. 11	2,185-95	288 bbl./day pmpg.	Cook sand, Cisco series, Penn. age	2	Triplett	
Jones—John E. Farrell's No. 1 F. D. Reid, NW cor. Sec. 31, Deaf & Dumb Asylum Lands Sur.	Apr. 22	2,567-70	150 bbl./day	Gunsight lime of Cisco series, Penn. age	2	Farrell	
Callahan—Ungren & Frazier and Beams Drilling Co.'s No. 1 Jackson, NE NW S 104 acres, Sec. 85, Blk. 12, T.&P. Sur.	May 24	920-28	150 bbl./day	Cisco series of Penn. age	1	Jackson	
Callahan—Huvlar Lee's No. 1 Harris, Sec. 99, B.B.B.&C. Sur., 6 miles NW of Baird	June 25	1,219-29	30 bbl./day	Tannehill sand of Cisco series of Penn.	1		

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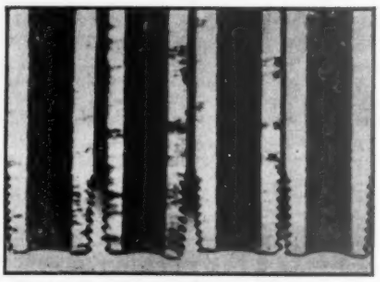
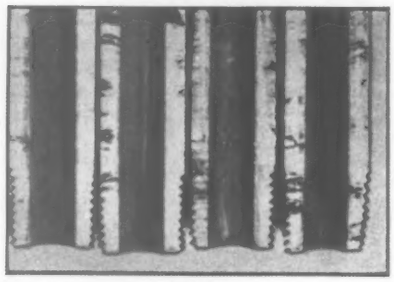


CONTROL PIPE



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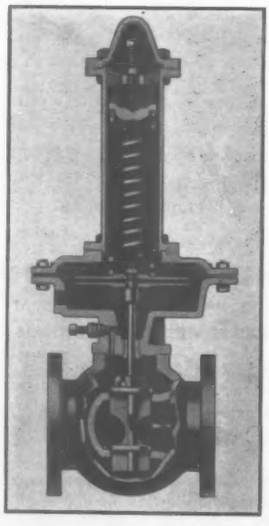
For complete information about the Davis line of gas regulating valves get our Bulletin G 1.



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pletions in Archer County's Hull-Silk field accounted for the majority of the increase.

Montague County Discoveries

Leading the way for the main part of the wildcat drilling activity of the past 6 months was the two discoveries in Montague County. About 2 miles west of the town of Bonita in the east central part of the county, Sinclair Prairie Oil Co.'s No. 1 W. B. Howard came in late in February for a discovery from the Bend series conglomerate. Located in the W. Wallace Survey, the well was officially gaged for 2,116 bbl. of oil daily from saturation drilled from 5,241-49 ft. Several offsets were immediately staked. The discovery company's Nos. 1 Doty and 2 Howard, both offsets to the field opener, were failures in the 5,200-ft. discovery horizon. Deeper drilling proved them both failures in the Ellenburger lime. Abandonment was believed likely for the tests, abandonment that would have seriously hampered further work in the area. However, both were plugged back and completed at the 5,400-ft. level, about 200 ft. deeper than the discovery well, for potentials in excess of 1,000 bbl. daily. Another 5,400-ft. producer was brought in and several active drilling operations were under way as the half-year closed.

Hardly had the Bonita field discovery well been gaged when another Bend conglomerate field opener was hailed in the western part of Montague County. It was W. B. Omohundro's No. 1 Wilmer Seay, in the NW cor. S½ N½ Section 32, Block 4, H.&T.C. Survey, about 4 miles south of the town of Ringgold. The discovery was gaged at 1,920 bbl. daily from pay at 5,690 to 5,704 ft. The pay section was at a slightly different level, stratigraphically, in the Bend series; however, both discovery wells were correlated as the typical "conglomerate" producing section.

As the half year closed, three wells comprised the Seay field and two tests were being drilled. One of these wells, not yet officially gaged, is a prospective 2½-mile northeast extension. The Seay field is expected by geologists to prove the better of the two Montague County strikes. It is located on a great local uplift in the northern part of the Fort Worth basin, the entire area, geologically, embracing more than 52,000 acres If not one large field, several smaller fields are expected to be developed on this uplift.

WEST CENTRAL AND NORTH TEXAS

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas
Archer	314	193,991	49	0
Baylor	18	7,118	6	0
Brown	29	145	19	0
Callahan	48	285	37	1
Clay	114	9,928	69	0
Coleman	20	1,987	7	3
Comanche	19	354	11	0
Cooke	101	19,493	30	0
Coryell	2	0	2	0
Denton	2	26	1	0
Eastland	9	239	5	1
Erath	2	0	2	0
Fisher	2	5	1	0
Foard	4	147	1	1
Grayson	3	0	3	0
Hardeman	1	0	1	0
Haskell	3	35	2	0
Hood	1	0	1	0
Jack	49	12,801	21	0
Jones	95	17,810	27	1
Montague	50	28,379	20	0
Palo Pinto	10	12	6	3
Runnels	1	187	0	0
San Saba	1	0	1	0
Shackelford	94	7,312	40	3
Stephens	12	4,572	4	0
Tarrant	1	0	1	0
Taylor	13	832	8	1
Throckmorton	7	101	4	1
Wichita	282	119,815	65	0
Wilbarger	60	16,569	21	0
Wise	3	0	3	0
Young	116	40,950	47	6
Total	1,486	483,093	515	21

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	244	86,953	79	7
February	214	60,360	70	4
March	257	79,702	99	4
April	293	94,491	105	3
May	255	96,672	98	0
June	223	64,915	64	3
First half 1940	1,486	483,093	515	21
First half 1939	1,194	307,323	515	21
Difference	292	75,770	0	0

K.M.A. Ordovician Discovery

A new and deeper producing horizon for the K.M.A. field of Wichita County was opened the middle of April by Fain-McGaha Oil Corp.'s No. 16-E Griffin, H. W. Spillers Survey, in the southwest part of the field. The well made 2,450 bbl. daily from lime pay drilled from

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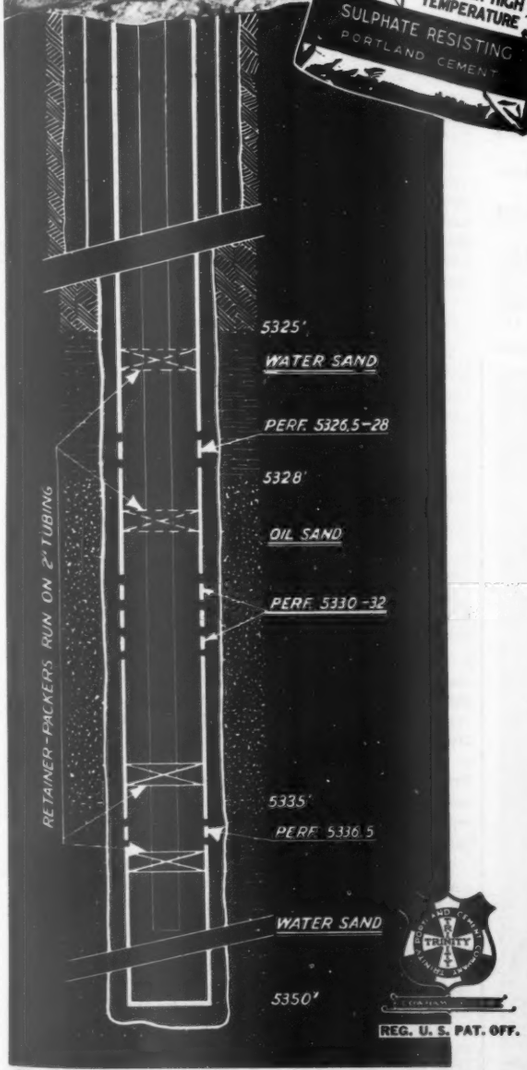

REG. U. S. PAT. OFF.

● Midway Victory Oil Company's Floerka No. B-2 in the Midway Field, Corpus Christi area, encountered water sands both above and below the 7 foot section of oil sand.

To make an oil well the squeeze had to be right! Here's what Dale Hicks, Midway-Victory Superintendent, did:

1. Selected Trinity INFERNO Cement
2. Perforated lower water sand at 5336.5
3. Squeezed out 68 sacks at 4100 lbs.
4. Perforated upper water sand at 5326.5 to 5328.0
5. Squeezed out 45 sacks at 3600 lbs.
6. Perforated oil sand at 5330.0 to 5332.0

RESULT: The well made 126 bbls. of pipe line oil through ⅛-inch choke. Casing pressure, 900 lbs. Tubing pressure, 525 lbs.

Mr. Hicks says it takes INFERNO to do a job like that.

TRINITY says you can't beat a combination of capable supervision, accurate measurements, good shooting, and INFERNO.

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TRINITY PORTLAND CEMENT COMPANY

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NORTH TEXAS

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
ARCHER COUNTY:							
Hull-Silk-Sikes—							
Daily average	3,380	4,075	6,731	6,869	6,766	6,597	
Month	104,786	118,166	208,659	206,081	209,759	197,910	1,045,361
Other pools—							
Daily average	8,844	9,526	9,868	9,894	9,910	9,662	
Month	274,175	276,268	305,904	296,830	307,215	289,860	1,750,252
BAYLOR COUNTY:							
Daily average	955	1,251	1,285	1,256	1,146	1,117	
Month	29,591	36,276	39,824	37,686	35,533	33,510	212,420
CLAY COUNTY:							
Daily average	2,290	2,827	2,979	2,988	2,831	2,760	
Month	71,001	81,972	92,359	89,647	87,759	82,800	505,538
COOKE COUNTY:							
Daily average	6,749	6,123	7,767	8,354	8,316	8,108	
Month	209,210	177,577	240,790	250,616	257,795	243,240	1,379,228
FOARD COUNTY:							
Daily average	467	471	439	463	421	410	
Month	14,480	13,652	13,605	13,897	13,053	14,300	82,987
JACK COUNTY:							
Daily average	5,483	5,865	6,386	6,368	6,007	5,857	
Month	169,976	170,071	197,952	191,041	186,236	175,710	1,090,986
MONTAGUE COUNTY:							
Benton and Holmes—							
Daily average	226	208	237	230	200	195	
Month	7,021	6,038	7,335	6,900	6,212	5,850	39,356
Rogers and Rogers—							
Daily average	977	586	995	1,502	1,508	1,470	
Month	30,295	16,988	30,831	45,063	46,739	44,100	214,016
Other pools—							
Daily average	4,496	4,958	4,965	5,103	5,004	4,879	
Month	139,373	143,792	153,920	153,087	155,123	146,370	891,665
WICHITA COUNTY:							
K.M.A. pool—							
Daily average	25,442	37,853	38,994	36,694	33,859	33,016	
Month	788,697	1,097,730	1,208,822	1,100,819	1,049,631	1,040,480	6,286,179
Burkburnett—							
Daily average	4,875	5,006	5,212	5,062	5,268	5,136	
Month	151,126	145,174	161,574	151,863	163,308	154,080	927,125
Electra—							
Daily average	7,919	8,367	8,608	8,408	8,388	8,178	
Month	245,486	242,644	266,846	252,237	260,028	245,340	1,512,581
Miscellaneous—							
Daily average	664	762	398	758	492	480	
Month	20,584	22,097	12,340	22,740	15,256	14,440	107,457
WILBARGER COUNTY:							
Daily average	8,667	9,850	10,059	9,879	9,956	9,707	
Month	268,680	285,654	311,844	296,356	308,641	291,210	1,762,385
YOUNG COUNTY:							
Daily average	9,674	10,391	10,594	10,609	10,684	10,417	
Month	299,883	301,325	328,407	318,285	331,210	312,510	1,891,620
Daily average	91,108	108,118	115,516	114,438	110,758	109,730	
First 6 months 1940	2,824,364	3,135,424	3,581,012	3,433,148	3,433,498	3,291,710	19,694,156
First 6 months 1939	2,556,976	2,308,249	2,627,126	2,661,759	2,757,070	2,724,860	15,636,040
First 6 months 1938	1,945,461	1,766,208	2,036,377	2,081,460	2,071,764	1,961,367	11,865,637
First 6 months 1937	1,778,992	1,846,548	2,103,245	2,051,278	2,158,059	2,085,354	12,223,476
First 6 months 1936	1,922,589	1,731,764	1,910,158	1,913,520	1,970,360	1,897,470	11,345,861
First 6 months 1935	1,879,747	1,740,760	1,874,384	1,825,350	1,919,210	1,852,710	11,092,161

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4,352-89 ft., about 500 ft. below the regular producing horizon of the K.M.A. field. A second well, not officially completed, is testing from the Ellenburger horizon about a mile to the southeast. The well, Magnolia Petroleum Co.'s No. 3 Thom, checked about 100 ft. lower than the discovery well. Slight saturation was drilled from 4,419-23 ft. and about 60 bbl. of oil and an equal volume of salt water was being tested as the half year closed. Further development has not been indicated for the area.

WEST CENTRAL TEXAS

A rather inactive half-year period has just passed in the West Central Texas district. Only eight new discoveries resulted from the wildcat exploration of the period. Usually 12 or 14 new areas are opened from the shallow Pennsylvanian sands and limes. Of these eight areas, none is considered a major discovery, the greater share of them being shallow, one or two-well areas.

Field development during the first half of 1940 was limited to the few fields in West Central Texas not already entirely defined or drilled to density. The Stribbling field of Stephens County reported several small extensions and, as the year passed the half-way mark, was the most active and showed the greatest promise of any area now under development in the district. The field was discovered in April 1938 by Horwitz & Oldom of Wichita Falls, Tex. Other areas in Stephens County receiving extensions during the half-year period were the Fagg field and the Loving field. Both are small two and three-well areas opened from the relatively deep Caddo lime last year and have been given little development.

New oil reserves either from new discoveries or from extensions to proven fields, amounted to very little during the past 6 months. The majority of the fields discovered this year are from shallow depths and the wells are small. Extensivie development is not predicted for any of the new discoveries.

New Fields

Perhaps the most significant discovery was the Nowles field in extreme southern Haskell County. Opened by K. B. Nowles' No. 1 Pardue, Section 1, S.F. I.W. Survey, southeast of the old Adams Branch lime-producing Pardue field, the well gaged only 30 bbl. of oil daily, pumping, from the Palo Pinto lime drilled with saturation from 3,394-3,404 ft. It was brought in about the middle of February and was believed at that time to be a one-well field only. Early in May S. B. Roberts drilled a failure a mile north of the discovery further to dim its prospects. During June J. C. Hunter completed his No. 1 W. Z. Betties, NE SE Section 1, T.C. Survey, for 25 bbl. of oil and 300 bbl. of water daily to extend the field a mile to the southwest. Further development for the area was not indicated.

Two discoveries were recorded in Jones County during April, one producing from the Gunsight lime and the other from the Cook sand. On April 11, T. D. Humphrey completed his No. 1 W. V. Triplett, SE SE, J. J. Hughes Survey, for 288 bbl. daily from the Cook sand of Cisco series. Saturation was drilled from 2,185-95 ft. The second well has been completed in the field and several tests were active as the year went into its second half. The field shows possibilities of being one of the better discoveries of the half-year period.

John E. Farrell completed his No. 1 F. D. Reid, NW cor. Section 31, Deaf and Dumb Asylum Lands Survey, on April 22 to open the first Gunsight lime production in Jones County. The discovery well made 150 bbl. daily, pumping, from pay drilled from 2,567-70 ft. Three new locations were immediately staked in the area, however, the second test drilled was dry in the discovery horizon. The third operation for the field is being rigged up for drilling while negotiations are under way to carry the second test deeper in search of another pay level.

Callahan County was given two shallow, Cisco series-producing spots during the half-year period, both of which offer indications of embracing several producing wells, however, comprising very little proven acreage.

As the year entered its second half, the West Central Texas district was as quiet as it has been in several years. No large discovery areas have been opened for development, no new wildcat exploration programs have been indicated, and most all of the proven fields have been drilled to density or defined as far as extension activity is concerned.

MARSHALL COUNTY STRIKE FEATURES OKLAHOMA DEVELOPMENTS

By DAL DALRYMPLE

A discovery of major importance in Marshall County, the opening of a dozen other oil pools of more or less significance, extensions of several productive areas, a revival of work at Oklahoma City, consistent development of the Cement, Greater Seminole, St. Louis and Creek County districts and completion of the deepest hole ever drilled in the state featured field activity in Oklahoma in the first half of 1940.

The Quentin Little discovery, drilled in Marshall County by the Pure Oil Co., stole the show. It created more interest, caused more comment, and did more to encourage oil men who had maintained their faith in Oklahoma than any discovery in the state since the Ramsey pool was opened in Payne County early in 1938. It strengthened the belief of many oil men that numerous important pools are yet to be found in the southern part of the state, and was the cause of a fast lease and royalty play over a wide area in several counties in the Red River Valley.

The discovery was the reward of extensive exploration and careful preparatory work. Early in 1939, after a thorough geological and geophysical study of the area, the Pure company acquired a lease block of approximately 23,000 acres in Marshall, Bryan and Johnston counties. Late in 1939, the company started its first well on the block at No. 1 Quentin Little, C W½ NE SE Section 28-5s-7e. Drilling carefully and studying the formations as they were penetrated, the operators found oil in the Tulip Creek sands, topped at 4,952 and 5,088 ft., in March of this year, but passed up these zones at that time to drill deeper. The hole was carried to total depth of 5,640 ft., but was plugged back and completed in April in the Tulip Creek zone for an initial potential of 4,542 bbl. of oil daily, with gas gaging as high as 25,000,000 cu. ft. The big lease and royalty play followed the finding of oil in the Tulip Creek sand.

As the discovery well was located near the center of the Pure company's block, it owned all offset locations. Soon after completion of the discovery, the company started four additional tests, two in Marshall County, one on the Bryan-Marshall county line and one in Bryan County. It later started a fifth test in Marshall County. None of these had reached the pay at midyear. If the productive area proves to be as large as expected, other companies will participate in the development as conditions justify.

The Marshall County strike and discoveries across the Red River in several northern Texas counties has enhanced the prospects for development of the south-

(Continued on Page 154)

OKLAHOMA

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
WASHINGTON COUNTY:							
Daily average	2,600	3,488	3,417	3,432	3,469	3,471	
Month	80,600	101,152	105,927	102,960	107,539	104,130	602,308
NOWATA COUNTY:							
Daily average	9,824	11,950	11,713	11,963	11,994	11,998	
Month	304,544	346,550	363,103	358,890	371,814	359,940	2,104,841
ROGERS COUNTY:							
Daily average	1,407	2,033	2,160	2,089	2,102	2,109	
Month	43,617	58,957	66,960	62,670	65,162	63,270	360,636
OSAGE AND EASTERN KAY COUNTIES:							
Burbank—							
Daily average	6,636	7,203	7,625	7,973	7,957	7,042	
Month	205,716	208,887	236,375	239,190	246,667	211,260	1,348,095
South Burbank—							
Daily average	8,674	8,666	8,622	8,490	8,252	8,439	
Month	268,894	251,314	267,282	254,700	255,812	253,170	1,551,172
Naval Reserve—							
Daily average	3,801	3,635	3,696	3,837	3,722	3,811	
Month	117,831	105,415	114,576	115,110	115,382	114,330	682,644
Other Osage pools—							
Daily average	11,558	12,896	12,945	13,072	12,993	13,224	
Month	358,298	373,984	401,295	392,160	402,783	396,720	2,325,240
TULSA COUNTY (Miscellaneous)):							
Daily average	2,815	2,999	2,922	2,957	3,084	3,062	
Month	87,265	86,971	90,582	88,710	95,604	91,860	540,992
WAGONER COUNTY:							
Daily average	615	627	632	690	619	630	
Month	19,065	18,183	19,592	20,700	19,189	18,900	115,629
OKMULGEE COUNTY:							
Daily average	5,886	4,068	3,956	3,618	3,657	3,614	
Month	182,466	117,972	122,636	108,540	113,367	108,420	753,401
MUSKOGEE AND McINTOSH COUNTIES:							
Daily average	638	796	634	816	917	912	
Month	19,778	23,084	19,654	24,480	28,427	27,360	142,783
OKFUSKEE COUNTY (Miscellaneous):							
Daily average	2,212	2,835	3,207	2,861	3,335	3,315	
Month	68,572	82,215	99,417	85,830	103,385	99,450	538,869
SEMINOLE, HUGHES, POTTAWATOMIE, and PONTOTOC COUNTIES:							
Seminole City—							
Daily average	7,085	7,343	7,354	7,271	7,147	7,226	
Month	219,635	212,947	227,974	218,130	221,557	216,780	1,317,023
East Seminole—							
Daily average	1,204	1,157	1,121	1,317	1,339	1,306	
Month	37,324	33,553	34,751	39,510	41,509	39,180	225,827
West Seminole—							
Daily average	1,323	1,336	1,324	1,296	1,380	1,990	
Month	41,013	38,744	41,044	38,880	42,780	59,700	262,161
Earlsboro district—							
Daily average	11,468	10,431	10,719	10,487	10,287	9,811	
Month	355,508	302,499	332,289	314,610	318,897	294,330	1,918,133
Little River, East Little River, and West Little River—							
Daily average	7,912	8,185	7,944	8,250	8,072	7,684	
Month	245,272	237,365	246,264	247,500	250,232	230,520	1,457,153
Searight and East and North Searight—							
Daily average	2,257	2,427	2,309	2,245	2,162	2,155	
Month	69,967	70,383	71,579	67,350	67,022	64,650	410,951
Mission—							
Daily average	1,283	1,311	1,269	1,322	1,322	1,307	
Month	39,773	38,019	39,339	39,660	40,982	39,210	236,983
Carr City—							
Daily average	2,435	2,409	2,380	2,370	2,380	2,364	
Month	75,485	69,861	73,780	71,100	73,780	70,920	434,926
Maud—							
Daily average	604	624	632	547	589	567	
Month	18,724	18,096	19,592	16,410	18,259	17,010	108,091

(Continued on Next Page)

OKLAHOMA OIL DISCOVERIES, FIRST HALF OF 1940

Field—	County	Location	Operator	Month	No. wells	Prod. formation	Top	Depth	Initial yield
Edna	Creek	24-14-10	Vierson, Martin and others	January	1	Wilcox	3,171	3,197	83
West Weleetka	Okfuskee	18-10-11	Summitt Drilling and Paul McIntyre	January	11	Booch	2,294	2,310	476
East Hallett	Pawnee	3-20-7	Portable Drilling Co.	February	abd.	Cleveland	2,141	2,167	45
East Broyles	Payne	24-18-4	T. N. Berry & Co.	March	3	Oswego	2,920	3,720	200
North Wewoka	Seminole	32- 9-8	Stanolind Oil & Gas Co.	March	1	Simpson-Wilcox	4,370	4,394	442
Kendrick	Lincoln	6-15-5	Summitt Drilling and Paul McIntyre	April	1	Prue	3,524	4,637	635
South Langston	Logan	31-17-1e	Helmerich & Payne and others	April	1	Simpson-Wilcox	5,258	5,435	61
Perkins	Lincoln	24-17-2	Portable Drilling Co.	April	1	Hunton	4,500	4,770	591
Cumberland	Marshall	28-5s-7	Pure Oil Co.	April	1	Tulip Creek	4,952	5,640	4,542
East Okemah	Okfuskee	11-11-10	C. A. Yoakum and others	April	1	Cromwell	3,140	3,176	75
South Clarita	Coal	35-1n-8	Barry and others	April	1	Wapanucka	1,821	1,954	15
West Arno	Creek	34-14-7	Bryan Petroleum Co.	April	1	Prue	2,556	2,652	140
Prague	Pottawatomie	4-11-6	H. L. Berkey	May	1	Skinner	3,262	4,688	182
West Francis	Pontotoc	26- 5-6	Kerlyn Oil Co.	June	1	Gilcrease	1,680	2,007	70
North Cromwell	Okfuskee	26-11-8	C. W. Titus	February	4	Cromwell	3,478	3,501	105
EXTENSIONS TO OLD AREAS									
Jackson	Seminole	22- 8-7	Devonian Oil Co.	February	1	Gilcrease	....	3,205	31
Okemah	Okfuskee	36-11-9	Paul McIntyre and others	February	1	Wilcox	3,765	3,821	154
Gray	Pottawatomie	26- 6-4	Vierson and others	March	1	Lime	....	3,670	40
Skellyville	Lincoln	32-16-6	Youngblood and others	March	3	Hunton	3,934	4,179	104
Fish	Seminole	18- 7-8	Winona Oil Co.	May	1	Wilcox	4,190	4,196	750
West Earlsboro	Pottawatomie	24- 9-4	Alma Oil Co.	May	2	Viola	4,354	4,510	75
West Earlsboro	Pottawatomie	26- 9-4	J. W. Meazel	June	2	Hunton	4,196	4,508	118
Wilzetta	Lincoln	2-12-5	Alma Oil Co.	April	11	Simpson	4,515	4,531	160
GAS DISCOVERIES									
									(Cu. ft.)
Altus area	Jackson	4-1n-20w	Gulf Oil Corp.	February	1	Sand	1,612	2,558	1,000,000
South Birch Creek	Osage	4-23-10	Norbia & Peters	March	1	Bartlesville	....	2,558	3,900,000
Alsuma area	Tulsa	26-19-13	Daisy Drilling Co.	April	1	Senora	2,251	2,294	3,000,000
Bethel area	Seminole	13- 9-7	W. O. Mason and others	April	1	Sand	....	1,351	1,000,000
Yeager area	Hughes	17- 8-10	Tomlinson and others	May	1	Cromwell	3,189	3,248	4,250,000
Okemah area	Okfuskee	34-12-9	C. A. Yoakum and others	June	1	Sand	....	3,826	7,000,000
.....	Pontotoc	31- 5-4	Yingling and others	June	1	Cleveland	2,010	2,267	11,000,000
Oktaha area	Muskogee	16-13-7	R. Garrett	June	1	Sand	1,630	1,660	2,500,000

CHEAP CLIPS
BAD COMPANY

You are particular about your wire lines. The Clips that fasten them are equally important. PROPERLY MADE FASTENINGS with GENUINE

CROSBY WIRE LINE CLIPS

may save days of costly fishing for dropped casings and drilling equipment.

Insist on the RED U-BOLT

AMERICAN HOIST & DERRICK CO.
CHICAGO SAINT PAUL, MINN. NEW YORK
DEALERS WITH STOCK IN ALL PRINCIPAL CITIES

McEVOY COMPANY

is another of the long list of leading oil well equipment manufacturers who regularly use Murray Mechanical Rubber Goods in their products.

McEvoy Type LH Blowout Preventers and Type ATSJ Tubing Heads, for example,

ARE EQUIPPED WITH

MURRAY RUBBER

Our modern facilities and strict supervision of all work enable us to give the highest quality and efficient service on mechanical rubber goods and synthetic oil-resisting products.

MURRAY
RUBBER COMPANY
606-8 N. Milby Preston 7017
HOUSTON, TEXAS

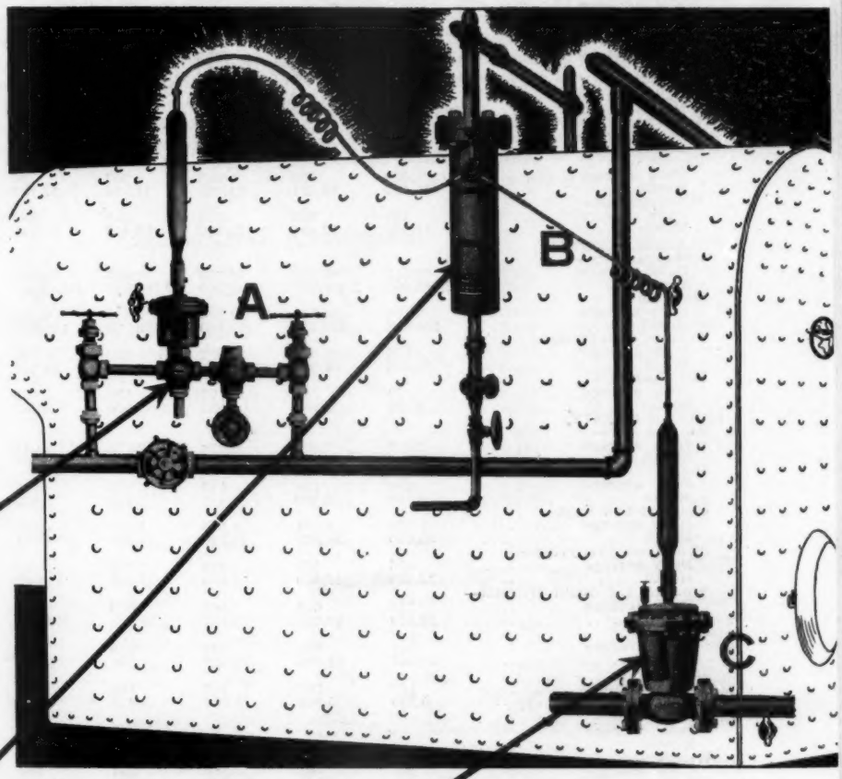
OKLAHOMA (Continued)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
Bowlegs—							
Daily average	7,105	7,050	6,912	6,975	6,846	6,913	
Month	220,255	204,450	214,272	209,250	212,226	207,390	1,267,843
Dora—							
Daily average	2,135	2,083	2,022	2,251	2,466	2,262	
Month	66,185	60,407	62,682	67,530	76,446	67,860	401,110
Total Seminole field—							
Daily average	44,811	44,356	43,986	44,331	43,990	43,585	
Month	1,389,141	1,286,324	1,363,566	1,329,930	1,363,690	1,301,550	8,034,201
Asher and West Asher—							
Daily average	296	327	349	294	373	366	
Month	9,176	9,483	10,819	8,820	11,563	10,980	60,841
Allen district—							
Daily average	6,104	6,353	6,402	5,602	5,644	5,349	
Month	189,224	184,237	198,462	168,060	174,964	160,470	1,075,417
Bebee and East Bebee—							
Daily average	2,925	4,275	4,881	5,231	5,493	5,407	
Month	90,675	123,975	151,311	156,930	170,283	162,210	855,384
Bethel and North Bethel—							
Daily average	2,263	2,218	2,178	2,169	2,182	2,173	
Month	70,153	64,322	67,518	65,070	67,642	65,190	399,895
Cromwell, North and South Cromwell—							
Daily average	2,810	3,043	2,999	3,217	3,479	3,391	
Month	87,110	88,247	92,969	96,510	107,849	101,730	574,415
Dill—							
Daily average	893	875	900	765	1,327	1,066	
Month	27,683	25,375	27,900	22,950	41,137	31,980	177,025
Fish—							
Daily average	3,220	3,346	3,412	3,272	3,117	3,194	
Month	99,820	97,034	105,772	98,160	96,627	95,820	593,233
Fitts—							
Daily average	20,293	20,038	19,418	18,584	17,503	17,038	
Month	629,083	581,102	601,958	557,520	542,593	511,140	3,423,396
Gray—							
Daily average	792	768	798	786	733	756	
Month	24,552	22,272	24,738	23,580	22,723	22,680	140,545
Holdenville—							
Daily average	662	681	734	750	686	693	
Month	20,522	19,749	22,754	22,500	21,266	20,790	127,581
Jesse—							
Daily average	2,146	2,247	2,254	2,201	2,150	2,172	
Month	66,526	65,163	69,874	66,030	66,650	65,160	399,403
Keokuk—							
Daily average	3,202	3,213	3,144	3,103	3,183	3,106	
Month	99,262	93,177	97,464	93,090	98,673	93,180	574,846
Sasakwa townsite—							
Daily average	365	404	350	324	310	316	
Month	11,315	11,716	10,850	9,720	9,610	9,480	62,691
Konawa, East, South, and West Konawa—							
Daily average	2,118	2,248	2,418	2,359	2,183	2,173	
Month	65,658	65,192	74,958	70,770	67,673	65,190	409,441
Olympic—							
Daily average	2,258	2,361	2,153	2,187	2,127	2,153	
Month	69,998	68,469	66,743	65,610	65,937	64,590	401,347
Shawnee—							
Daily average	1,779	1,796	2,022	2,514	2,224	2,228	
Month	55,149	52,084	62,682	75,420	68,944	66,840	381,119
St. Louis-Pearson—							
Daily average	30,738	30,691	29,544	23,907	27,946	28,731	
Month	952,878	890,039	915,864	717,210	866,326	861,930	5,204,247
Sasakwa—							
Daily average	1,299	1,270	1,234	1,231	1,196	1,188	
Month	40,269	36,830	38,254	36,930	37,076	35,640	224,999
Papoose—							
Daily average	631	639	637	659	648	650	
Month	19,561	18,531	19,747	19,770	20,088	19,500	117,197
Wofford—							
Daily average	123	94	83	78	81	82	
Month	3,813	2,726	2,573	2,340	2,511	2,460	16,423
Wetley—							
Daily average	120	93	96	97	105	101	
Month	3,720	2,697	2,976	2,910	3,255	3,030	18,588
Wewoka district—							
Daily average	1,502	1,790	1,818	1,755	1,685	1,812	
Month	46,562	51,910	56,358	52,650	52,235	54,360	314,075
Grayson—							
Daily average	1,241	1,261	1,130	1,133	1,052	1,055	
Month	38,471	37,149	35,030	33,990	32,612	31,650	208,902
Traugh—							
Daily average	714	705	717	692	664	662	
Month	22,134	20,445	22,227	20,760	20,584	19,860	126,010
Adams—							
Daily average	728	758	740	740	735	741	
Month	22,568	21,982	22,940	22,200	22,785	22,230	134,705
Hazel—							
Daily average	327	312	320	277	232	236	
Month	10,137	9,048	9,920	8,310	7,192	7,080	51,687
Avoca—							
Daily average	996	1,012	997	991	995	997	
Month	30,876	29,348	30,907	29,730	30,845	29,910	181,616
King-West King—							
Daily average	785	929	761	746	851	846	
Month	24,335	26,941	23,591	22,380	26,381	25,380	149,008
Sacred Heart—							
Daily average	1,083	670	498	488	285	311	
Month	33,573	19,430	15,438	14,640	8,835	9,330	101,246
Rosanna—							
Daily average	842	762	713	658	625	627	
Month	26,102	22,098	22,103	19,740	19,375	18,810	128,228
Miscellaneous—							
Daily average	1,124	1,206	1,239	1,085	970	1,007	
Month	34,844	34,974	38,409	32,550	30,070	30,210	201,057
CREEK COUNTY:							
Glennpool-Sapulpa district—							
Daily average	3,666	4,497	4,028	4,278	4,258	4,246	
Month	113,646	130,413	124,868	128,340	131,998	127,380	756,645
Cushing-Shamrock—							
Daily average	8,628	9,149	9,217	9,433	9,469	9,331	
Month	267,468	265,321	285,727	282,990	293,539	279,930	1,674,975
Bristow-Slick district—							
Daily average	6,269	6,099	6,110	6,253	6,126	6,007	
Month	194,339	176,871	189,410	187,590	189,906	180,210	1,118,326
Mannford and Olive—							
Daily average	1,669	1,723	1,638	1,704	1,591	1,614	
Month	51,739	49,967	50,778	51,120	49,321	48,420	301,345
Mounds—							
Daily average	280	255	227	287	255	249	
Month	8,680	7,395	7,037	8,610	7,905	7,470	47,097
Wilcox—							
Daily average	517	544	499	510	533	527	
Month	16,027	15,776	15,469	15,300	16,523	15,810	94,905
Independent—							
Daily average	449	397	346	292	275	281	
Month	13,919	11,513	10,726	8,760	8,525	8,430	61,873
Miscellaneous:							
Daily average	148	342	739	749	837	818	
Month	4,588	9,918	22,909	22,470	25,947	24,540	110,372
PAWNEE AND PAYNE COUNTIES:							
Yale district, Meramec, and Jennings—							
Daily average	2,557	3,126	3,060	3,161	3,118	3,111	
Month	79,267	90,654	94,860	94,830	96,658	93,330	549,599
Ramsey—							
Daily average	4,386	3,816	3,785	3,812	3,788	3,772	
Month	135,966	110,664	117,335	114,360	117,428	113,160	708,913

(Continued on Next Page)

SAFETY and ECONOMY

Equipment for Boilers



(Bulletin 15-A contains many helpful hints and methods on the use and installation of the INFERNO Boiler Safety Unit. Write for it.)

It is safer to use INFERNO Boiler Safety Units because men are fallible.

Boilers are damaged, boilers wear out prematurely and men are killed or hurt because men forget or make mistakes while in charge of boilers.

It is cheaper to use INFERNO Boiler Safety Units because they automatically carry the lowest safe water level and guarantee dry steam with safety; because they speed up your operations; because they minimize fuel consumption and boiler maintenance; and because boilers last longer.

INFERNO Boiler Safety Units installed on each boiler include:

FEED WATER LEVEL CONTROL VALVE

(See illustration A) This valve automatically controls the supply of water to the boiler, holding the water level at any desired point above the crown sheet with very little variation. It guarantees dry steam with safety. Your crown sheet is never in danger, your boiler never flooded. Nothing can affect the action of this valve except failure of the water supply, in which case the Lowater Alarm warns the fireman.

LOWATER ALARM

(See illustration B) If the water supply ever falls ½ inch below the set level, this alarm automatically blows a shrill whistle, calling the fireman. The whistle can be heard distinctly at 100 to 150 yards away.

FUEL CUT-OFF VALVE

(See illustration C) If your fireman does not respond to the whistle warning of the Lowater Alarm and the water level falls another ½ inch, or 1" below the set level, this Fuel Cut-Off Valve automatically cuts off the fire before damage can be done.

All INFERNO equipment is designed for ECONOMY as well as SAFETY. For instance you can minimize wear and tear on your pumping equipment by installing an INFERNO Automatic Pump Governor or INFERNO Automatic Pump Control Valve in combination with your INFERNO Boiler Safety Unit or Units. (Only one Pump Governor or Pump Control Valve required to the battery of boilers.)

INSIST on INFERNO equipment at your supply store - - - - - - - - - SPECIFY it on your new boilers

ATTENTION OPERATORS:

If you already have the INFERNO Lowater Alarm, it's as simple as A B C to add either the INFERNO Feed Water Level Control, or the INFERNO Fuel Cut-Off Valve, or to complete your INFERNO Boiler Safety Unit by adding both. It doesn't cost much, either.

THE INFERNO COMPANY

"Makers of Boiler Equipment That Exceed All Safety Regulations"

P. O. BOX 1138 SHREVEPORT, LA., U.S.A. 115 RICOU ST.

OKLAHOMA (Continued)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
Broyles—							
Daily average	182	226	122	122	264	253	
Month	5,642	6,554	3,782	3,660	8,184	7,590	35,412
Watchorn—							
Daily average	393	350	348	372	395	392	
Month	12,183	10,150	10,788	11,160	12,245	11,760	68,286
Cleveland and Keystone—							
Daily average	931	916	905	895	813	821	
Month	28,861	26,564	28,055	26,850	25,203	24,630	160,163
North Terlton—							
Daily average	185	206	209	219	286	279	
Month	5,735	5,974	6,479	6,570	8,959	8,370	42,087
Lauderdale—							
Daily average	829	849	793	793	863	845	
Month	25,699	24,621	24,583	23,790	26,753	25,470	150,916
Coyle—							
Daily average	2,020	1,606	1,643	1,735	1,504	1,610	
Month	62,620	46,574	50,933	52,050	46,624	48,300	307,101
Norfolk and West Norfolk—							
Daily average	293	299	298	313	306	297	
Month	9,083	8,671	9,238	9,390	9,486	8,910	54,778
Carr—							
Daily average	306	359	363	393	393	389	
Month	11,160	10,411	11,253	11,790	12,183	11,670	68,467
Miscellaneous—							
Daily average	380	429	725	615	682	673	
Month	11,780	12,441	22,475	18,450	21,142	20,190	106,478
OKLAHOMA COUNTY:							
Oklahoma City—							
Daily average	98,813	99,353	96,329	96,617	99,627	100,074	
Month	3,063,203	2,881,237	2,986,199	2,898,510	3,088,437	3,002,220	17,919,806
Edmond—							
Daily average	4,194	4,268	4,360	4,439	4,195	4,269	
Month	130,014	123,772	135,160	133,170	130,045	128,070	780,231
Britton-south Britton—							
Daily average	556	839	872	850	782	793	
Month	17,236	24,331	27,032	25,500	24,242	23,790	142,131
Miscellaneous—							
Daily average	70	100	72	125	163	128	
Month	2,170	2,900	2,232	3,750	5,053	3,840	19,945
LINCOLN COUNTY:							
Sac and Fox—							
Daily average	2,617	2,500	2,276	2,175	2,044	2,022	
Month	81,127	72,500	70,556	65,250	63,364	60,660	413,457
Peck—							
Daily average	154	155	145	147	175	166	
Month	4,774	4,495	4,495	4,410	5,425	4,980	28,579
Chandler and Hoyt—							
Daily average	1,160	1,201	1,088	1,156	1,103	1,092	
Month	35,960	34,829	33,728	34,680	34,193	32,760	206,150
Stroud and Skellyville—							
Daily average	405	431	416	502	453	464	
Month	12,565	12,499	12,896	15,060	14,043	13,920	80,973
Wilzetta and South Wilzetta—							
Daily average	710	658	662	663	573	611	
Month	22,010	19,082	20,522	19,890	17,763	18,330	117,597
Lafoon—							
Daily average	631	652	727	918	744	742	
Month	19,561	18,908	22,537	27,540	23,064	22,260	133,870
Sporn—							
Daily average	169	192	184	184	196	194	
Month	5,239	5,568	5,704	5,520	6,076	5,820	33,927
Perkins—							
Daily average	.....	.....	.....	369	494	487	
Month	.....	.....	.....	11,070	15,314	14,610	40,994
Wellston—							
Daily average	501	467	477	364	375	366	
Month	15,531	13,543	14,787	10,920	11,625	10,980	77,386
Davenport—							
Daily average	424	451	484	451	482	476	
Month	13,144	13,079	15,004	13,530	14,942	14,280	83,979
Miscellaneous—							
Daily average	211	163	163	252	318	316	
Month	6,541	4,727	5,053	7,560	9,858	9,480	43,219
STEPHENS AND COTTON COUNTIES:							
Duncan—							
Daily average	2,490	2,891	2,763	3,034	2,962	3,072	
Month	77,190	83,839	85,653	91,020	91,822	92,160	521,684
Loco-Milroy—							
Daily average	682	683	747	774	769	772	
Month	21,142	19,807	23,157	23,220	23,839	23,160	134,325
Velma—							
Daily average	568	752	701	752	746	753	
Month	17,608	21,808	21,731	22,560	23,126	22,590	129,423
Walters—							
Daily average	756	954	902	914	955	944	
Month	23,436	27,666	29,822	27,420	29,605	28,320	166,269
Comanche—							
Daily average	491	551	445	594	518	533	
Month	15,221	15,979	13,795	17,820	16,058	15,990	94,863
Miscellaneous—							
Daily average	111	32	112	110	111	119	
Month	3,441	928	3,472	3,300	3,441	3,570	18,152
CLEVELAND COUNTY:							
Moore—							
Daily average	2,041	1,877	2,071	2,158	1,783	1,815	
Month	63,271	54,433	64,201	64,740	55,273	54,450	356,368
Miscellaneous—							
Daily average	.....	.....	9	0	6	9	
Month	.....	.....	279	0	186	270	735
KAY, GRANT AND NOBLE COUNTIES:							
Blackwell, Deer Creek, Otsott, Caldwell and Webb—							
Daily average	833	747	809	772	753	761	
Month	25,823	21,663	25,079	23,160	23,343	22,830	141,898
Dilworth—							
Daily average	404	452	444	457	422	433	
Month	12,524	13,108	13,764	13,710	13,082	12,990	79,178
Lamont—							
Daily average	377	347	424	469	418	410	
Month	11,687	10,063	13,144	14,070	12,958	12,300	74,222
Ponca City—							
Daily average	250	243	238	288	275	269	
Month	7,750	7,047	7,378	8,640	8,525	8,070	47,410
Braman-North Braman-Southeast Braman—							
Daily average	1,373	1,348	1,406	1,006	1,603	1,540	
Month	42,563	39,092	43,586	30,180	49,693	46,200	251,314
Hubbard—							
Daily average	481	549	536	508	489	457	
Month	14,911	15,921	16,616	15,240	15,159	14,610	92,457
Thomas—							
Daily average	212	218	203	226	221	222	
Month	6,572	6,322	6,293	6,780	6,851	6,660	39,478
Tonkawa—							
Daily average	1,548	1,666	1,674	1,767	1,831	1,816	
Month	47,988	48,314	51,894	53,010	56,761	54,480	312,447
Billings—							
Daily average	5,830	5,873	5,864	5,960	5,993	6,037	
Month	180,730	170,317	181,784	178,800	185,783	181,110	1,078,524
Lucien—							
Daily average	8,197	8,097	8,010	8,007	7,995	7,949	
Month	254,107	234,813	248,310	240,210	247,845	238,470	1,463,755

(Continued on Next Page)

ern part of the state. Certainly, the southern counties will be given consideration by the oil men in the next year or so, with the likelihood that numerous wildcats will be drilled, several starting this year.

Other New Pools

Fourteen other oil pools were found in Oklahoma in the first half of the year, one of these later being abandoned. Three of the new pools were in Okfuskee County, an area that has been receiving considerable attention from wildcat operators in recent months. The West Weleetka and Okemah districts were especially busy, and by the end of June 11 wells had been completed in the West Weleetka pool, opened in Section 18-10-11 by Paul McIntyre and Summitt Drilling Co. in

OKLAHOMA

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas
Atoka	1	0	1	0
Beckham	1	0	1	0
Caddo	47	15,905	16	1
Carter	27	950	4	0
Comanche	31	89	11	3
Coal	1	15	0	0
Cotton	2	0	2	0
Creek	90	2,317	35	6
Garfield	6	25	3	1
Garvin	3	150	2	0
Grady	14	1,149	4	1
Grant	2	0	2	0
Hughes	19	104	13	2
Jackson	45	1,957	15	2
Jefferson	2	50	1	0
Kay	6	148	3	0
Kingfisher	1	0	1	0
Kiowa	19	3,934	12	0
Latimer	4	0	2	2
LeFlore	3	0	3	0
Lincoln	29	2,360	10	3
McClain	14	8,389	2	0
McIntosh	4	0	4	0
Marshall	1	4,542	0	0
Muskogee	8	102	4	2
Noble	5	2,539	1	0
Okfuskee	45	8,294	12	3
Oklahoma	13	6,217	2	0
Okmulgee	50	463	15	8
Osage	34	876	14	4
Pawnee	27	620	12	5
Payne	16	2,838	6	1
Pontotoc	57	7,897	18	5
Pottawatomie	95	21,358	33	0
Seminole	76	8,195	26	3
Stephens	35	2,837	18	1
Texas	1	0	0	1
Tillman	5	2,551	2	0
Tulsa	18	56	6	7
Wagoner	36	328	20	6
Washington	1	0	0	1
Total	896	107,316	336	68

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	127	18,020	46	13
February	130	19,082	46	8
March	135	12,067	54	11
April	158	20,724	59	13
May	150	19,656	74	7
June	196	17,767	57	16
First half 1940	896	107,316	336	68
First half 1939	900	116,165	279	62
Difference	4	8,849	57	6

Results of Wildcat Drilling

County—	Oil wells	Gas wells	Dry holes	Average depth of dry holes (ft.)
Atoka	0	0	1	2,045
Carter	0	0	1	3,640
Coal	1	0	0	0
Cotton	0	0	1	3,485
Creek	2	0	4	3,020
Cleveland	0	0	1	8,322
Garfield	0	0	2	6,146
Garvin	0	0	2	3,253
Grady	0	0	1	4,100
Grant	0	0	1	5,509
Hughes	0	1	7	1,465
Jackson	0	1	3	2,487
Kay	0	0	1	1,055
Kingfisher	0	0	1	9,403
Kiowa	0	0	10	1,406
Latimer	0	0	1	1,061
LeFlore	0	0	1	5,972
Lincoln	3	0	6	4,022
Logan	1	0	2	5,947
Marshall	1	0	0	0
McIntosh	0	0	3	2,575
Murray	0	0	1	950
Muskogee	0	1	0	0
Noble	0	0	2	6,121
Okfuskee	2	1	3	3,435
Okmulgee	0	0	1	1,749
Osage	0	0	1	2,600
Pawnee	0	0	1	3,620
Payne	1	0	4	4,304
Pontotoc	0	1	4	2,629
Pottawatomie	4	0	6	4,647
Seminole	2	1	8	4,169
Stephens	0	0	5	1,260
Tillman	0	0	1	4,232
Tulsa	0	1	0	0
Wagoner	0	0	1	1,155
Washita	0	0	1	14,582
Total	17	7	88	

Average depth of oil wells, ft.	3,920
Average depth of gas wells, ft	2,458
Average depth of dry holes, ft.	3,440
Percentage of oil wells	15.18
Percentage of gas wells	6.25
Percentage of dry holes	78.57

January. Two pools were opened in Lincoln County, two in Creek County, and one each in Payne, Seminole, Logan, Pottawatomie and Pontotoc counties. A small producer in the Clarita area, Coal County, also was classed as a pool opener. An accompanying table lists the 1940 discoveries.

Several other wells that were drilled as wildcats found production, but subsequently were classed as extensioners to older pools. Two of these, in Section 24 and 26-9-4, extended the West Earlsboro pool in Pottawatomie County. Winona Oil Co. completed a 750-bbl. Wilcox sand producer in SW SE NE Section 18-7-8, which was classed as a north extension to the Fish pool in Seminole County, and at midyear an outpost in NE SW SW Section 18-7-8, about ¾ mile northwest of Fish, found oil in Wapanucka and Cromwell zones and gave promise of opening a new pool on separate structure from other Fish field producers. Other extension wildcats were in the Jackson area of Seminole County, Okemah district in Okfuskee County, Gray pool in Pottawatomie County, and Skellyville and Wilzetta pools in Lincoln County.

Gas discovery wells were completed in Hughes, Jackson, Muskogee, Osage, Okfuskee, Pontotoc and Tulsa counties.

Aside from wildcat exploration, total operations in the state showed little change from the 1939 record. There was a small increase in completions over the last half of 1939, but four less than in the first half. The activity in the three periods is reflected in the following figures:

	First half 1939	Second half 1939	First half 1940
Completions	900	861	896
Oil wells	559	486	492
Gas wells	62	51	68
Dry holes	279	324	336

Activity in Pottawatomie

Pottawatomie County was the busiest county in the state in 1939 and it retained that position in the first 6 months of 1940, but its lead over Creek County, second busiest area, was reduced. Only 95 wells have been completed in Pottawatomie County to date, compared with 144 in the first half of 1939 and 125 in the last half of that year. The decline is due to a reduction of work in the St. Louis district, which was the busiest single area in the state last year. The loss at St. Louis was partly offset by operations in the Shawnee pool and other county fields.

Operations also showed a decrease in Creek County, there being 90 completions this year by June 30 as against 112 in the first 6 months of 1939 and 92 in the last 6 months of that year.

A lessening in field activity also was noticeable in Seminole, the third busiest county this year and last. It had 76 wells completed at midyear, compared with 94 in the first half of 1939 and 90 in the last 6 months of that year. This, too, was true of Pontotoc County, which had 57 completions this year against the 60 and 62 in the respective periods in 1939. The bulk of activity in Pontotoc County this year has been in the Bebee pool, while the nearby South Konawa pool has been one of the busier areas in Seminole County.

Cement Development

Increases were registered in several other counties, offsetting the losses elsewhere. Caddo County was outstanding, there being 47 wells completed there up to June 30. Only 51 wells were completed in the county in the entire 12 months of 1939. The Cement field, one of the busier areas in the state, was responsible for the gain as all of the Caddo work with the exception of one wildcat was in that district. Cement, an area of many producing zones, was extended to the west, some new pay zones were tapped and several wells were drilled on the townsite. As many locations within the recognized limits of the field remain to be drilled, it is apparent that this will continue to be one of the state's busier areas for some time to come.

Okfuskee County also registered gains this year, in completions in proven areas as well as wildcat discoveries. The discoveries were chiefly responsible for the gains. The total of 45 completions in Okfuskee as of June 30, compares with a total of 57 for all of 1939. The Dill pool, which was extended northward in Okfuskee County and northwestward into Seminole County this year, contributed to the upswing in Okfuskee, as did the pools around Okemah and Weleetka. Due to the recent discoveries, Okfuskee is expected to remain among the busier counties the remainder of this year.

Other counties having more field work in the first 6 months than in the corresponding period of 1939 included Carter, 27 completions to 15 last year; Comanche, 31 to 14; Grady, 14 to 8; Hughes, 19 to 9; Pawnee, 27 to 20; Stephens, 35 to 31; Wagoner, 36 to 6. Pawnee, 27 to 20; Stephens, 35 to 31; Wagoner, 35 to 6. Work in other active counties either remained stationary or declined.

Development of the Byars pool in McClain County accounted for the gain in that county. Although several fairly large producers have been completed at Byars, the pool is partly defined and, barring unforseen developments, probably will not be a factor in the Oklahoma picture much longer.

Wagoner County on the east side and Comanche County in the southwestern part of the state have registered gains this year, but the wells are shallow and are small producers. Wagoner County continued fairly busy at midyear, and probably will remain so the next 6 months. There is little activity in Comanche at this time.

There has been a reduction of work in Payne County, due largely to cessation of development in the Ramsey pool and a slowing up at Coyle. A new pay zone was proven at Coyle, and that area may be more active the remainder of this year. Wildcat exploration in the county continues, as operators seek other fields comparable with Ramsey, a small but highly productive Wilcox sand pool.

Lincoln is another busy 1939 county that has had a decline in field activity this year, principally because of the drilling up of the Sac and Fox pool. The several discoveries and extensions recorded in Lincoln, however, may result in more activity the remainder of the year.

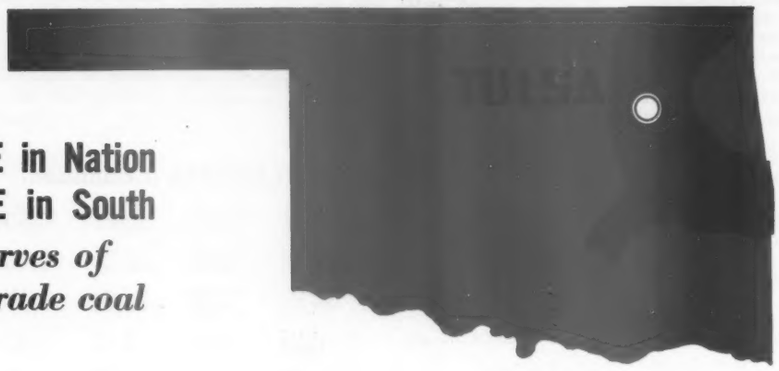
The Hobart pool, an outstanding Kiowa County discovery of 1939, was given several one-location extensions and dry holes were drilled on the southeast and

(Continued on Page 159)

OKLAHOMA (Continued)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
North Lucien—							
Daily average	681	702	701	741	749	742	
Month	21,111	20,358	21,731	22,230	23,219	22,260	130,909
Vernon—							
Daily average	236	255	238	259	256	248	
Month	7,316	7,395	7,378	7,770	7,936	7,440	45,235
Polo—							
Daily average	1,117	1,040	1,169	1,266	1,155	1,160	
Month	34,627	30,160	36,239	37,980	35,805	34,800	209,611
Miscellaneous—							
Daily average	102	257	178	227	240	233	
Month	3,162	7,453	5,518	6,810	7,440	6,990	37,373
GARFIELD COUNTY:							
Garber—							
Daily average	1,716	1,678	1,661	1,831	1,712	1,702	
Month	53,196	48,662	51,491	54,930	53,072	51,060	312,411
Miscellaneous—							
Daily average	174	209	206	129	139	136	
Month	5,394	6,061	6,386	3,870	4,309	4,080	30,100
LOGAN COUNTY:							
Crescent—							
Daily average	2,043	2,067	2,500	2,234	2,441	2,262	
Month	63,333	59,943	77,500	67,020	75,671	67,860	411,327
Langston—							
Daily average	399	375	355	294	249	249	
Month	12,369	10,875	11,005	8,820	7,719	7,470	58,258
Marshall-Lovell-Seward—							
Daily average	333	292	314	311	319	316	
Month	10,323	8,468	9,734	9,330	9,889	9,480	57,224
Meridan and Miscellaneous—							
Daily average	412	378	418	415	216	312	
Month	12,772	10,962	12,958	12,450	6,696	9,360	65,198
CARTER COUNTY:							
Healdton:							
Daily average	8,554	8,874	8,893	8,962	8,984	8,938	
Month	265,174	257,346	275,683	268,860	278,504	268,140	1,613,707
Hewitt—							
Daily average	3,692	3,950	3,702	4,011	3,849	3,887	
Month	114,452	114,550	114,762	120,330	119,319	116,610	700,023
Sholem-Alechem—							
Daily average	2,754	2,911	2,771	2,919	2,898	2,846	
Month	85,374	84,419	85,901	87,570	89,838	85,380	518,482
Wildcat Jim—							
Daily average	471	456	450	463	447	451	
Month	14,601	13,224	13,950	13,890	13,857	13,530	83,052
Tussey—							
Daily average	.....	.....	399	405	.....	.....	
Month	.....	.....	12,369	12,150	.....	.....	24,519
Tatums—							
Daily average	1,709	2,031	1,746	1,949	1,862	1,874	
Month	52,979	58,899	54,126	58,470	57,722	56,220	338,416
Graham-Fox-Ed Cox—							
Daily average	2,864	2,446	2,273	2,691	2,872	2,860	
Month	88,784	70,934	70,463	80,730	89,032	85,800	485,743
Brock—							
Daily average	234	273	272	259	248	250	
Month	7,254	7,917	8,432	7,770	7,688	7,500	46,561
Miscellaneous—							
Daily average	48	50	51	57	53	55	
Month	1,488	1,450	1,581	1,710	1,643	1,650	9,522
KIOWA COUNTY:							
Daily average	222	28	.....	.....	.....	.....	
Month	6,882	812	.....	.....	.....	.....	7,694
COAL COUNTY:							
Daily average	498	485	103	99	94	99	
Month	15,438	14,065	3,193	2,970	2,914	2,970	18,105
LOVE COUNTY:							
Daily average	35	.....	39	.....	.....	.....	
Month	1,085	.....	1,209	.....	.....	.....	2,294
JEFFERSON COUNTY:							
Daily average	1,863	1,996	1,890	1,925	2,079	2,062	
Month	57,753	57,884	58,590	57,750	64,449	61,860	358,286
GARVIN COUNTY:							
Daily average	965	980	985	927	970	971	
Month	29,915	28,420	30,535	27,810	30,070	29,130	175,880
GRADY COUNTY:							
Daily average	1,729	1,914	1,865	2,170	2,180	2,173	
Month	53,599	55,506	57,815	65,100	67,580	65,190	364,790
MARSHALL COUNTY:							
Daily average	125	114	184	810	138	157	
Month	3,875	3,306	5,704	24,300	4,278	4,710	46,173
TILLMAN COUNTY:							
Daily average	1,337	1,460	1,548	1,608	1,487	1,503	
Month	41,447	42,340	47,988	48,240	46,097	45,090	271,202
JACKSON COUNTY:							
Daily average	1,974	2,020	2,009	2,075	2,074	2,062	
Month	61,194	58,580	62,279	62,250	64,294	61,860	370,457
CADDO COUNTY:							
Daily average	6,477	5,659	6,344	7,260	6,910	7,007	
Month	200,787	164,111	196,664	217,800	214,210	210,210	1,203,782
COMANCHE COUNTY:							
Daily average	16	6	4	5	31	12	
Month	496	174	124	150	961	360	2,265
McCLAIN COUNTY:							
Daily average	388	.....	2,806	3,217	1,566	1,527	
Month	11,408	.....	86,986	96,510	48,546	45,810	289,260
Daily average	410,007	418,378	417,256	416,487	418,426	417,593	416,328
First 6 months 1940	12,710,217	12,132,962	12,934,936	12,494,610	12,971,206	12,527,790	75,771,721
First 6 months 1939	13,450,342	12,770,600	14,309,259	13,480,470	14,267,843	13,552,470	81,831,044
First 6 months 1938	16,668,421	14,341,456	15,700,260	14,610,360	13,698,931	12,721,800	87,741,228
First 6 months 1937	17,914,063	16,942,744	19,736,150	19,983,090	20,067,075	19,265,610	113,906,732
First 6 months 1936	15,285,945	14,824,626	16,518,133	16,786,560	17,432,571	16,859,610	97,707,445

TULSA AND *COAL*



9th STATE in Nation
1st STATE in South
— in reserves of high grade coal

***"In the 3 major sources of power, Oklahoma is very, very rich . . . all of which should make Oklahoma a state unexcelled (industrially) by any, and perhaps excelling all."*—Roger W. Babson.**

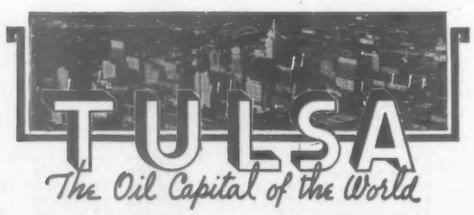
A number of years ago Roger W. Babson made an industrial survey of the southern states. While in Tulsa, at the time, he said, in a public address:

"The industrial future of every one of our forty-eight states will be determined by one word, and this is the word 'Power.' This means that the future of Oklahoma depends not on its railroads or banks; not on its hotels or stores; yea, not on its wealth or population. All these things are mere tools—as helpless as an idle factory without steam, or a stalled automobile without gasoline. The future of Oklahoma depends on its sources, its supply and its use of power.

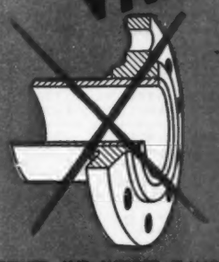
"The sources of material power in America at the present time are four: Namely, coal, oil, gas and water power . . . Moreover, the last—namely, water power, will constantly play a smaller and smaller part in the total power generated. Now, in the remaining three major sources of power—supplying 98% of the total—Oklahoma is very, very rich. Based on a statistical study, I should say that Oklahoma leads all the Southern states in industrial power resources, with the possible exception of Alabama.

"Oklahoma has large deposits of bituminous coal underlying twelve thousand square miles. This coal reserve is estimated to contain eighty billion tons. As an illustration of what this means, let me say that the annual production of Pennsylvania, which leads all the forty-eight states, is only about one hundred and thirty-five million tons. This means that Oklahoma for six hundred years could produce more every year than Pennsylvania, the largest producer in the United States. Moreover, Oklahoma could supply for two hundred years all the coal that is consumed in the United States and still have some left. Some day a great section of the Southwest will be supplied by electric power and artificial gas made at the mines in Oklahoma. Surely the industrial outlook for Oklahoma is very great."

Tulsa is the principal city in Oklahoma's great coal section. There is thus little question that Tulsa, in addition to being today the Oil and Gas Capital of the World, will one day be the "Coal Capital of the South." Power-using industries should recognize in Northeastern Oklahoma an area where low-cost power is assured *for two thousand years to come!* The Industrial Department of the Tulsa Chamber of Commerce will be glad to furnish further information, or to prepare a special report on the opportunity for your business in Tulsa.

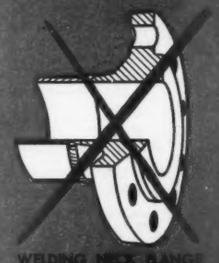


MIDWEST VAN STONE WELDING NIPPLE makes the *ideal* flanged joint for welded piping systems



SCREWED AND WELDED FLANGE

SLIP-ON FLANGE WELDED FRONT AND BACK



WELDING NECK FLANGE

For making connections to boilers, pumps, valves and other flanged outlets (and where piping must be frequently cleaned or inspected for corrosion), Midwest Van Stone Welding Nipples have a tremendous advantage over flanges that are welded to the pipe (see drawings at left). The swivel flange of the Nipple makes it unnecessary to accurately line up the bolt holes before welding; "setting up" is simple and quick because no special clamps or jigs are required to hold the face of the flange absolutely perpendicular to the axis of the pipe. The result is a real saving in time and cost of welding.

Another important economy is in erection. Field organizations report a saving of 25% in erection time for making up a joint using Midwest Van Stone Welding Nipple in comparison with flanges rigidly fixed to the pipe; this saving is even greater when the flanges are on bends.

Ask for Bulletin WF-36 which gives complete data regarding Midwest Van Stone Welding Nipples . . . and other Midwest Welding Fittings that simplify and save on welded piping.

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DISCOVERY AT CHAPEL HILL REVIVES INTEREST IN EAST TEXAS

By
R. MARNE SANFORD

The discovery of oil during February at the previously established distillate field at Chapel Hill in Smith County was the only discovery of the past half year in eastern Texas. This deep area has held the attention of the district since its discovery and development programs have been started by several major companies.

Old fields throughout the district reported very little development, the East Texas field being particularly quiet. Practically the only drilling in the big field was done on tracts receiving special spacing permits. The plugging of wells in the field almost kept pace with new completions. Many of the East Texas field wells are now being produced only at intervals, and are shut in for reworking between producing periods. Only 134 completions were recorded during the past 6 months in the big field as compared to 258 for the first 6 months of 1939. There were 264 completions listed for the entire eastern Texas district, including the East Texas field, as against 388 for a similar period a year ago.

The Chapel Hill field, opened to distillate production in 1938 by Hunt Oil Co.'s No. 1 Bradley, was given oil production early in February when Shell Oil Co., Inc.'s No. 1 H. Campbell, P. Lively Survey, found a zone of saturation in the Pettit lime from 8,036-58 ft. The well was completed naturally for 250 bbl. daily. The following week it was given an acid treatment and took a second potential gage of 800 bbl. daily. A third acid treatment was given and the well was finally gaged at 1,025 bbl. daily. Sun Oil Co. and Shell Oil Co., Inc., both started new tests for the area, the former's well being completed as a distillate producer as was the original discovery for the field.

At the close of the first half of the year Sun Oil Co., Shell Oil Co., Inc., and Pure Oil Co., all had several locations made in the field which were scheduled for immediate drilling due to lease expiration. Wells in the field cost an estimated $80,000.

The Chapel Hill structure is a large anticlinal dome and has been an unexplored potential source of oil for several years. The original distillate-discovery well was thought to have been located about on the top of the dome. The results of the past 6 months' drilling have established the fact that the south end of the field is mainly confined to distillate production at about 7,500 ft. and the oil production is concentrated in the northern part of the field from the 8,100-ft. Pettit lime.

Wildcat Activity

North of Elkhart in Anderson County a new gas field was thought discovered in February when a wildcat test blew out from the Woodbine sand at 5,407 ft. and blew wild for about 2 weeks. It was R. H. Williamson's No. 1 O. G. Rogers, W. M. Greenwood Survey. Previously abandoned as a dry hole, the well developed a gas pressure and blew out on February 18. It wasted about 18,000,000 cu. ft. of gas daily until early in March when it was successfully brought under control. Testing proved the gas pressure had declined and had been replaced by a large volume of salt water. It was plugged and abandoned early in March.

Shortly following the discovery of oil in the Chapel Hill area of Smith County, a temporarily abandoned wildcat in Camp County was rigged up for deepening. H. S. Moss, Dallas, took over the No. 1 Joe Venters, S. Wright Survey, 3 miles southeast of Leesburg, and drilled to a depth of 7,608 ft. from the old total depth of 5,710 ft. At this point it was abandoned for a second time. Several weeks later the new operator again rigged the test up and deepened it to the Pettit lime. Saturation was reported to have been drilled from 7,943-98 ft. With a final total depth of 8,087 ft., casing was cemented in the hole and until this date plug has not been drilled. Title trouble is reported the cause

EAST TEXAS

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
JOINER:							
Daily average	118,590	119,942	118,659	122,892	112,758	110,673	
Month	3,676,284	3,478,306	3,678,423	3,686,772	3,495,498	3,320,190	21,335,473
KILGORE:							
Daily average	128,898	123,215	121,897	126,246	115,831	113,854	
Month	3,995,852	3,573,232	3,778,811	3,787,388	3,590,761	3,415,620	22,141,664
LONGVIEW:							
Daily average	152,074	160,959	159,238	164,920	150,813	147,948	
Month	4,714,309	4,667,821	4,936,382	4,947,586	4,675,199	4,438,440	28,379,737
Daily average	399,563	404,116	399,794	414,058	379,402	372,475	
First 6 months 1940	12,386,445	11,719,359	12,393,616	12,421,746	11,761,458	11,174,250	71,856,874
First 6 months 1939	11,885,555	10,392,984	11,919,345	12,930,840	12,940,299	11,272,500	71,341,523
First 6 months 1938	14,165,719	11,839,671	13,440,409	12,973,723	11,543,936	10,914,010	74,877,468

EAST CENTRAL TEXAS

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
BAZZETTE:							
Daily average	163	131	189	342	382	411	
Month	5,050	3,791	5,856	10,269	11,836	12,330	49,132
CORSICANA:							
Daily average	360	425	422	435	422	426	
Month	11,164	12,331	13,083	13,053	13,084	12,780	75,495
CURRIE:							
Daily average	102	108	103	99	104	102	
Month	3,067	3,119	3,088	2,973	3,217	3,060	18,524
FLAG LAKE:							
Daily average	314	350	426	229	372	360	
Month	9,722	10,143	13,191	6,876	11,530	10,800	62,262
MEXIA:							
Daily average	1,584	1,598	1,593	1,591	1,570	1,584	
Month	49,095	46,343	49,398	47,721	48,654	47,520	288,731
POWELL:							
Daily average	1,755	1,783	1,767	1,778	1,743	1,771	
Month	54,401	51,704	54,766	53,335	54,019	53,130	321,355
SULPHUR BLUFF:							
Daily average	4,239	2,583	4,421	4,284	4,276	4,287	
Month	131,406	74,913	137,049	128,539	132,566	128,610	733,083
VAN:							
Daily average	13,869	13,847	16,899	15,327	13,798	13,325	
Month	429,933	401,555	523,863	459,826	427,719	399,750	2,642,646
WORTHAM:							
Daily average	101	99	96	107	103	102	
Month	3,135	2,869	2,964	3,218	3,196	3,060	18,442
BOGGY CREEK:							
Daily average	312	286	265	253	291	286	
Month	9,662	8,300	8,220	7,581	9,018	8,580	51,361
CAYUGA:							
Daily average	10,156	7,758	9,224	8,960	11,352	11,373	
Month	314,838	224,983	285,944	268,815	351,914	341,220	1,787,714
CHAPPEL HILL:							
Daily average	.....	.....	158	121	85	72	
Month	.....	.....	4,883	3,636	2,631	2,160	13,310
LONG LAKE:							
Daily average	2,121	2,202	2,255	2,249	2,128	2,211	
Month	65,750	63,863	69,894	67,484	65,955	66,330	399,276
MARION COUNTY:							
Daily average	107	136	232	273	260	256	
Month	3,318	3,955	7,203	8,189	8,042	7,680	38,387
NAVARRO CROSSING:							
Daily average	650	673	692	679	620	663	
Month	20,153	19,504	21,448	20,382	19,202	19,890	120,579
RODESSA:							
Daily average	23,964	22,083	21,196	20,264	19,272	20,453	
Month	742,885	640,414	657,066	607,914	597,417	613,590	3,859,286
TALCO:							
Daily average	21,230	21,363	24,665	23,880	23,997	24,438	
Month	658,134	619,511	764,629	716,398	743,889	777,140	4,279,701
TRINITY:							
Daily average	362	371	374	362	311	334	
Month	11,214	10,754	11,609	10,863	9,642	10,020	64,102
MISCELLANEOUS:							
Daily average	414	489	500	507	490	506	
Month	12,819	14,198	15,497	15,219	15,183	15,180	88,096
Daily average	81,798	76,284	85,473	81,743	81,571	84,428	
First 6 months 1940	2,535,746	2,212,250	2,649,651	2,452,291	2,528,714	2,532,830	14,911,482
First 6 months 1939	2,797,824	2,539,036	2,937,436	2,998,009	2,910,764	2,810,124	16,993,193
First 6 months 1938	2,661,018	2,510,176	3,087,336	3,040,676	2,957,496	2,787,638	17,044,342
First 6 months 1937	3,269,687	3,057,810	3,760,600	3,531,526	3,900,811	3,782,195	21,302,629
First 6 months 1936	1,379,138	1,383,241	1,513,836	1,529,814	1,636,711	1,592,121	9,034,861

Miscellaneous pools and their total production (in barrels) for the first 6 months of 1940 were: Bolivar, 2,953; Collinsville, 4,400; Lott, 3,131; Negro Creek, 84; Opelika, 2,954; Pottsboro, 552; Post Oak, 142; Richland, 2,896; Rowe & Baker, 9,785; South Bosque, 2,348; Ginter, 4,298; Grapeland, 17,631; Huntington, 825; Lone Star, 5,654; Nacogdoches, 1,247; Panola, 3,530; Percilla, 3,091; Potter, 11,534; Shelbyville, 1,495; Waskom, 9,546. Total miscellaneous production, 88,096 bbl.

DISCOVERY IN EAST TEXAS DURING FIRST HALF OF 1940

County, location, and discovery well—	Date	Depth	Gage	Formation	No. of wells	Name of pool	Remarks—
Smith—Shell Oil Co., Inc.'s No. 1 H. Campbell, P. Lively Sur., 2 miles NE of distillate discovery well of 2 years ago	Feb. 12	8,036-58	Final gage 1,025 bbl./day	Pettis lime of lower Trinity	1	Chappel Hill	Discovery made 250 bbl. per day naturally. Made 800 bbl. after first acid treatment. Made 1,025 bbl. per day after second treatment.

for the delay. Three locations have been staked in the immediate area, two of which have been readied for spudding.

As the second half of the year started the majority of the new development in the eastern Texas district was expected to be in the Chapel Hill field. Completions continue to be listed for the East Central Texas fields, Talco, Cayuga, and Long Lake, however, all are almost entirely developed.

Recycling Operations

New recycling plants were built in both the Cayuga and the Grapeland fields during the past 6 months. The former area was given a new 10,000,000-cu. ft. daily capacity plant by Roesser & Pendleton, Inc., which was the third for the field. It is located on the V. W. Bowyer lease, Everett Ritter Survey. The Tide Water-Seaboard partnership owns the other two plants in the field.

A new 50,000,000-cu. ft. daily capacity recycling plant was announced in March for the Grapeland field in northern Houston County. It is a joint operation of Lone Star Gas Co., and Trinity Gas Co. and is on their 80-acre lease in the Caleb Wallace Survey. American Liberty Oil Co. operates the first plant built in the field.

EAST TEXAS

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas
Anderson	29	1,486	4	10
Angelina	3	0	3	0
Camp	1	0	1	0
Falls	2	21	1	0
Fannin	1	0	1	0
Franklin	16	5,856	2	0
Freestone	3	244	1	0
Gregg	86	3,912	0	1
Henderson	4	0	4	0
Hill	1	0	1	0
Houston	18	225	2	13
Hopkins	1	0	1	0
Kaufman	1	0	1	0
Leon	4	59	0	3
Limestone	4	0	3	1
McLennan	1	0	1	0
Nacogdoches	2	0	2	0
Navarro	8	503	6	0
Red River	1	0	1	0
Rusk	21	512	3	0
Smith	9	1,043	2	0
Titus	11	4,143	1	0
Trinity	1	0	1	0
Upshur	21	748	1	0
Van Zandt	1	0	1	0
Total	250	18,752	44	28

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	51	2,490	8	6
February	36	2,301	2	6
March	42	2,837	6	5
April	44	4,194	7	2
May	44	1,875	13	8
June	33	5,055	8	1
First half 1940	250	18,752	44	28
First half 1939	365	20,365	61	15
Difference	115	1,613	17	13

Oklahoma Fields

(Continued from Page 155)

northwest sides. A north extension was near completion at time of writing. Development was rewarded because of lack of market outlet, only nine producers having been completed. Kiowa County continues a favored hunting ground for the wildcatters.

The deepest test ever drilled in Oklahoma was given up as a failure early in January when Continental Oil Co. abandoned its No. 1 Proctor, C NW Section 28-10-20w, on a big block in Washita County. The hole was bottomed at 14,582 ft. The company soon started a second wildcat on its block at No. 1 School Land, C NE Section 16-8-16w, and on June 30 was drilling around 7,450 ft.

Wildcat exploration is under way in nearly all sections of the state, including the Panhandle, where gas tests are being drilled in Texas County and a location was reported in Beaver County.

Wildcat locations, rigs and drilling wells were reported in 27 counties on July 1, as follows: Atoka, 3 tests; Beckham, 1; Cleveland, 1; Comanche, 1; Creek, 2; Caddo, 1; Garvin, 1; Garfield, 1; Hughes, 2; Kay, 1; Kingfisher, 1; Kiowa, 5; Lincoln, 1; Logan, 1; Marshall, 1; Noble, 1; Okfuskee, 5; Oklahoma, 2; Osage, 2; Pawnee, 1; Payne, 5; Pontotoc, 7; Pottawatomie, 4; Seminole, 3; Stephens, 2; Tillman, 5; Washita, 1. Several other wildcat tests were scheduled to be started soon, and operators were working on still other deals for tests that may be started within the next few weeks or months. It was apparent at midyear, then, that an extensive wildcat exploration campaign was getting under way and that the last half of the year may see more activity than the first 6 months.

WEST CENTRAL TEXAS (Continued)

(Continued from Page 147)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
Miscellaneous—							
Daily average	4,762	5,036	5,042	5,065	4,975	4,928	
Month	147,608	146,053	156,309	151,947	154,227	147,840	900,984
STEPHENS COUNTY:							
Daily average	3,313	3,813	3,757	3,893	3,924	3,886	
Month	102,701	110,579	116,478	116,804	121,652	116,580	684,794
STONEWALL COUNTY:							
Daily average	57	54	53	.....	.....	.....	
Month	1,759	1,571	1,645	.....	.....	.....	4,975
TAYLOR COUNTY:							
Daily average	466	328	406	334	288	294	
Month	14,433	9,514	12,589	10,015	8,931	8,820	64,302
THROCKMORTON COUNTY:							
Daily average	252	282	304	299	299	297	
Month	7,813	8,172	9,421	8,976	9,262	8,910	52,554
NOLAN COUNTY:							
Daily average	4	3	6	3	2	2	
Month	124	96	192	96	48	60	616
Daily average	27,784	29,223	29,354	29,703	29,062	28,689	
First 6 months 1940	861,289	847,470	909,972	891,098	900,916	860,660	5,271,405
First 6 months 1939	824,318	745,289	858,929	873,692	889,884	859,276	5,051,388
First 6 months 1938	1,210,578	1,067,000	1,198,932	1,143,095	1,131,012	1,087,834	6,838,451
First 6 months 1937	1,030,593	992,761	1,139,200	1,116,447	1,183,185	1,172,721	6,634,907
First 6 months 1936	885,763	802,894	870,511	878,250	935,983	916,530	5,289,931
First 6 months 1935	904,766	778,204	905,758	862,290	908,889	875,220	5,235,127

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Semiannual Review

PRODUCTION IN MICHIGAN HOLDS UP BUT NO POOLS DISCOVERED

By OTTO C. PRESSPRICH

Michigan maintained its production at 11,118,711 bbl., or at practically the same level as during the first half of 1939, but the prospects at the end of each half year were somewhat different. Last year, Freeman-Redding and Walker were increasing rapidly, while during the first half of 1940 they were declining and only the Wise pool in Isabella County was showing increased production. Prospects are thus for still further declines during the second half year unless wildcatting meets with success and one or more new fields are developed rapidly.

Over 80 per cent of the drilling activity in Michigan was in Clare, Isabella, Ottawa-Kent, and Allegan-Van Buren counties. This activity consisted in drilling up the Freeman-Redding pool in Clare County, the Wise pool in Isabella, the Walker-Wyoming-Tallmadge pool in Kent and Ottawa and the New Salem and other pools in Allegan and Van Buren counties. Of these, development in the Freeman-Redding pool consisted generally of drilling inside locations. The Walker pool was extended beyond the limits of the original pool first to the northeast and later to the northwest into Tallmadge Township, where most of the more recent activity has been concentrated. Initials are somewhat smaller than in the original pool, however.

Proration was applied to many wells in these larger pools during the past half year, generally on a flat maximum allowable basis of 75 bbl. or 100 bbl. where wells were spaced on 10-acre spacing. In the Redding and Wise pools, the wells are on 20-acre spacing and receive double the maximum allowables. It is anticipated that few wells will be able to reach these maxima within a short time and that all wells in the state will soon be on a 100 per cent basis.

MICHIGAN

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas
Allegan	124	13,313	52	0
Arenac	5	125	2	2
Barry	8	25	6	0
Bay	2	0	2	0
Berrien	5	0	5	0
Calhoun	2	0	2	0
Cass	3	0	3	0
Clare	42	15,820	9	7
Eaton	1	0	1	0
Genesee	2	0	2	0
Gladwin	2	0	2	0
Gratiot	1	0	1	0
Ionia	2	0	2	0
Isabella	41	9,173	6	0
Jackson	3	0	3	0
Kalamazoo	6	0	6	0
Kent	116	14,599	32	0
Mason	1	0	1	0
Mecosta	1	0	1	0
Midland	9	777	4	0
Missaukee	3	0	3	0
Monroe	19	1,249	7	0
Montcalm	14	0	5	9
Oakland	1	0	1	0
Oceana	1	0	1	0
Ogemaw	4	83	0	0
Osceola	2	0	2	0
Otsego	1	0	1	0
Ottawa	121	19,263	30	2
St. Joseph	1	0	1	0
Saginaw	1	0	1	0
Shiawassee	2	0	2	0
Tuscola	3	175	0	0
Van Buren	46	1,544	31	0
Total	602	75,266	232	20

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	102	22,172	39	3
February	97	16,930	25	4
March	100	7,814	49	2
April	96	9,726	33	0
May	104	9,607	43	6
June	103	9,017	43	5
Total first half 1940	602	75,266	232	20
Total first half 1939	670	243,351	271	19
Difference	68	168,085	39	1

Wildcat Wells

In January, Crown Development Co. caused some excitement by finding a small producer, No. 1 Reimold in Section 34-5n-15w, near Holland. The pool appears to be very small, however, and production has so far been negligible.

Of greater interest are two wildcats which were being completed at the end of the half year. C. W. Teater and Wallace Markle's No. 1 Johnston, Section 8, Bloomfield Township, Huron County, was reported as a 25-bbl. well prior to acidization. This well is particularly interesting as it is the first production from Michigan's "thumb."

Sun Oil Co.'s No. 1 Cameron, Section 10, Grout Township, Gladwin County, was also reported as a 25-bbl. well and was testing at the end of the half year.

Michigan's deepest drilling well, C. L. Maguire's No. 1 Charles Clark, Section 32, Warren Township, Midland County, reported gas in the Sylvania sandstone with considerable water.

Other wildcat tests were disappointing, particularly some closely watched wells in Missaukee County, which, it was hoped, would extend the productive trend out of the basin and onto the northern rim. Efforts to find other rich Traverse spots in Allegan and Van Buren counties were also unsuccessful and, from the standpoint of the wildcatter, Michigan has completed the poorest half year in her recent history even though her production record was maintained at near the peak.

MICHIGAN

Daily Average and Monthly Production in First 6 Months of 1940

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	Ttl. 6 mos. (bbl.)
PORTER-YOST:							
Daily average	4,736	5,057	4,754	5,018	4,898	4,867	
Month	146,816	146,653	147,374	150,540	151,838	146,010	889,231
GREENDALE-CHIPPEWA:							
Daily average	1,283	1,295	1,297	1,313	1,227	1,231	
Month	39,773	37,555	40,207	39,390	38,037	36,930	231,892
GENEVA-MIDLAND:							
Daily average	9	5	12	14	13	14	
Month	279	145	372	420	403	420	2,039
SHERMAN-ISABELLA:							
Daily average	1,238	1,312	1,317	1,449	1,441	1,438	
Month	38,378	38,048	40,827	43,470	44,671	43,140	248,534
WISE-ISABELLA:							
Daily average	1,626	1,717	2,155	2,816	3,270	3,266	
Month	50,406	49,793	66,805	84,480	101,370	97,980	450,834
VERNON-LEATON-DENVER:							
Daily average	742	717	785	796	697	705	
Month	23,002	20,793	24,335	23,880	21,607	21,150	134,767
FREEMAN-REDDING:							
Daily average	14,817	13,887	14,110	12,861	11,867	11,472	
Month	459,327	402,723	437,410	385,830	367,877	344,160	2,397,327
GRANT-CLARE:							
Daily average	11	9	2	0	0	0	
Month	341	261	62	0	0	0	664
BEAVERTON:							
Daily average	116	162	129	147	120	121	
Month	3,596	4,698	3,999	4,410	3,720	3,630	24,053
EDENVILLE:							
Daily average	398	393	353	356	269	266	
Month	12,338	11,397	10,943	10,680	8,339	7,980	61,677
BENTLEY-GLADWIN:							
Daily average	383	398	389	355	275	271	
Month	11,873	11,542	12,059	10,650	8,525	8,130	62,779
BUCKEYE-WICKLUND-OARD:							
Daily average	3,697	3,704	3,163	3,016	3,034	3,012	
Month	114,607	107,416	98,053	90,480	94,054	90,360	594,970
OGEMAW:							
Daily average	1,474	1,578	1,374	1,432	1,451	1,453	
Month	45,694	45,762	42,594	42,960	44,981	43,590	265,581
SECORD-GLADWIN:							
Daily average	19	0	0	0	9	0	
Month	589	0	0	0	279	0	868
ADAMS-ARENAC:							
Daily average	111	132	131	106	116	118	
Month	3,441	3,828	4,061	3,180	3,596	3,540	21,646
CLAYTON-ARENAC:							
Daily average	1,457	1,107	1,182	1,112	1,350	1,330	
Month	45,167	32,103	36,642	33,360	41,850	39,900	229,022
TUSCOLA:							
Daily average	18	0	0	0	0	0	
Month	558	0	0	0	0	0	558
SAGINAW BAY AREA:							
Daily average	123	107	96	103	105	104	
Month	3,813	3,103	2,976	3,090	3,255	3,120	19,357
BIRCH RUN:							
Daily average	38	36	35	31	29	28	
Month	1,178	1,044	1,085	930	899	840	5,976
DUNDEE-MONROE:							
Daily average	141	452	304	353	351	353	
Month	4,371	13,108	9,424	10,590	10,881	10,590	58,964
MONTCALM COUNTY:							
Daily average	291	358	334	337	309	302	
Month	9,021	10,382	10,354	10,110	9,579	9,060	58,506
ALLEGAN—ALL POOLS:							
Daily average	8,343	7,489	7,296	8,444	7,647	7,636	
Month	258,633	217,181	226,176	253,320	237,057	229,080	1,421,447
HOLLAND-OTTAWA:							
Daily average	0	32	89	35	27	28	
Month	0	928	2,759	1,050	837	840	6,414
ZEELAND-OTTAWA COUNTY:							
Daily average	10	0	29	20	10	12	
Month	310	0	899	600	310	360	2,479
MUSKEGON:							
Daily average	70	66	71	62	74	70	
Month	2,170	1,914	2,201	1,860	2,294	2,100	12,539
WALKER-WYOMING-TALLMADGE:							
Daily average	18,455	18,560	17,113	15,526	13,193	13,210	
Month	572,105	538,240	530,565	465,780	408,983	396,300	2,911,973
BLOOMINGDALE:							
Daily average	6,296	6,062	5,576	5,212	4,682	4,640	
Month	195,176	175,798	172,856	156,360	145,142	139,200	984,532
BANGOR-VAN BUREN:							
Daily average	26	32	32	126	236	219	
Month	806	928	992	3,780	7,006	6,570	20,082
Daily average	65,928	64,667	62,130	61,040	56,690	56,166	61,092
First 6 months 1940	2,043,768	1,875,343	1,926,030	1,831,200	1,757,390	1,684,980	11,118,711
First 6 months 1939	1,741,673	1,665,860	1,813,624	1,911,120	2,078,209	2,026,470	11,236,956
First 6 months 1938	1,591,168	1,497,356	1,623,346	1,688,820	1,762,381	1,585,410	9,748,481
First 6 months 1937	903,347	885,532	1,219,911	1,345,791	1,310,048	1,270,254	6,934,883

Develop Important Gas Fields in Eastern Area

By STAFF CORRESPONDENT

During the first half of 1940 no new oil pools were opened in Southwest Pennsylvania nor in West Virginia. There is a possibility in Grant district, Pleasants County, West Virginia, that a Gordon sand oil pool may be developed as the result of a test by the Columbian Carbon Co. on the Hammat farm and a second well has been started.

In Southeast Ohio and the shallow sands to the north, much progress has been made in water flooding the Berea grit in many places where the depth of that formation is approximately 500 ft. In Chatham Township, Medina County, and in the vicinity of Lodi, much work has been done with fair results. Possible new production has been opened in Grafton Township, Lorain County, where Berea wells have been completed at 164 ft. which were good for 50 bbl. a day. The extent of this has not yet been determined.

As a whole, work in well-defined oil pools has not progressed to the extent that tests for additional gas reserves have. With the uncertainty of oil markets and the discouraging shifts in price, wildcat work is at a minimum.

Some of the major companies of the country have made comprehensive studies of eastern Ohio ranging from Cadiz, Ohio, north to Lake Erie, and the study also embraced part of Northwest Pennsylvania. Various geophysical crews have been working for these companies independently of each other and large blocks of acreage have been leased. In Berlin Township, Mahoning County, the Magnolia has started a deep test on the F. M. Fields farm. It is reported that this test is to go to the Clinton sand only. Reports of other work lend credence to the belief that the Trenton and St. Peter will also be tested this year in various sections.

Gas Development

The largest gas pool in the East is in the Oriskany sand in Kanawha County, West Virginia. During the last 6 months 33 wells have been completed in Poca district and Union district all of which were commercial wells ranging from 1,000,000 cu. ft. a day to 15,000,000 cu. ft. a day.

This pool extended into Washington and Ripley districts, Jackson County, West Virginia, and there 14 additional wells were completed some of which exceeded 15,000,000 cu. ft. a day. The average depth of these wells is 5,000 ft. At this date 22 wells are drilling in Kanawha County and 14 in Jackson County, all scheduled for the Oriskany sand. A line is being constructed which will provide an additional outlet from this field to northern Pennsylvania where the Oriskany gas fields have declined.

A new Injun sand pool was opened in Otter district, Clay County, West Virginia, which had spectacular results as one well gaged initially 30,000,000 cu. ft. a day, open flow. Others have blown in at over 10,000,000 cu. ft. a day. In Wetzel County, there was a Gordon sand well which gaged 8,000,000 cu. ft. a day.

Some wildcatting for gas reserves has been done. In Jackson County, on the Henry Morrison farm in Grant district, a commercial gas well was completed in the Oriskany sand and now a second one is being completed which gives promise of being a commercial producer. It is on the C. E. Andricks farm in Grant district and remote from the discovery well.

In Steel district, Wood County, an Oriskany test was drilled on the J. K. Grimm farm which while not put to producing had a volume of 119,000 cu. ft. of gas a day from the Oriskany sand. In Tygart district of the same county, a new test is starting which is scheduled for the Oriskany. In Boone County a test on the Bull Creek Coal & Land Co. land in Peytona district, found commercial possibilities in the Oriskany sand. In Grant district, Harrison County, a deep test is being started and a rotary will be used as it will have to reach a depth of 7,600 ft. Much work has been done and more contemplated to add gas reserves to the east.

SOUTHEAST OHIO

In Southeast Ohio a deep test has started on the Jesse C. Stollar farm in Palmer Township, Washington County, which is scheduled for the Oriskany sand and research has been done for more in other counties which are expected to start shortly. To the north in Cuyahoga County a large gas pool has been developed around Mayfield and Village Heights. The Newburg is the producing horizon but the underlying Clinton has been found unproductive.

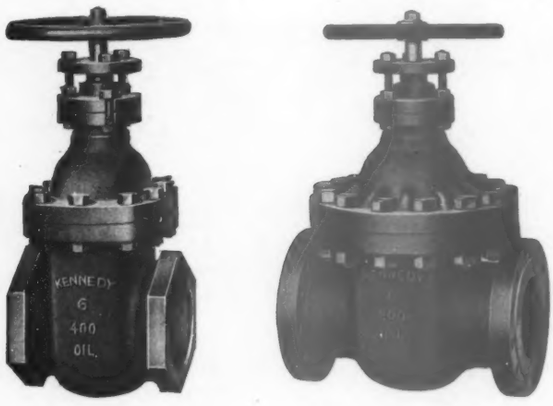
Eastern oil pipe lines have been revamped with some new lines, and additional booster stations with the increased trunk-line deliveries of Illinois basin crude to Buffalo, Philadelphia, and Bayway. For a period about 50,000 bbl. a day was being transported which is now somewhat diminished due to the congestion at the seaboard caused by the present phase of the European war.

SOUTHWEST PENNSYLVANIA

In Southwest Pennsylvania one of the interesting tests made was in Beaver County where an exhausted Oriskany gas well on a proven Oriskany closure was deepened through the Lockport dolomite, with no Newburg producing horizon evidenced, through the White Medina and bottomed in the Queenstown shale at 6,823 ft. It was void of any added production but it was the first test in the area to go as deep.

Two tests now drilling will add much to geological information. One in Stewart Township, Fayette County, on Laurel Ridge which has reached a depth of 7,600 ft. with cable tools. In this the Onondaga lime is expected shortly. The other in Garrett County, Maryland, on the Accident dome, is drilling at 6,800 ft. and possibly has just struck the Tully lime. These tests

(Continued on Page 207)



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Canadian Production Up In Busy Half Year

By VICTOR LAURISTON

Official Alberta production figures, covering the period from January to May, inclusive, show a substantial aggregate increase over the same period last year. Comparative figures for the various producing areas are as follows:

	January-May	
	1939	1940
Field—	(bbl.)	(bbl.)
Turner Valley limestone crude	2,275,051	2,798,945
Turner Valley gas wells	160,871	40,306
Turner Valley absorption plants	.....	119,415
Turner Valley shallow crude	3,699	3,142
Red Coulee light crude	5,663	4,982
Wainwright heavy crude	5,424	3,281
Lloydminster heavy crude	348	510
Taber medium crude	3,720	.....
Steveville light crude	432	.....
Moose dome light crude	891	.....
Dina-Ribstone heavy crude	.....	1,059
Del Bonita light crude	.....	1,985
Total	2,456,099	2,973,625

As in several recent years, the Turner Valley west-flank crude area was the major factor, both in the actual production and in the increased Alberta output. At the end of 1939 there were 92 crude producers and 7 wells on test. In the first half of 1940 the total of crude producers was stepped up to 111, with several more testing; and the estimated crude potential had been increased from 64,791 bbl. at the end of 1939 to over 100,000 bbl. at the end of June 1940.

The Alberta Conservation Board continued to restrict production, allowables being based on the available market for crude. In general, these allowables were higher than in the same period of 1939, reflecting improved marketing conditions and accentuated demand for petroleum products in the western provinces.

Aggregate allowables for this period were as follows: January 1 (from December 22), 12,000 bbl.; January 23, 18,000 bbl.; February 16, 17,500 bbl.; March 5, 15,000 bbl.; March 27, 20,000 bbl.; May 13, 18,000 bbl.; June 21, 21,000 bbl.; July 1, 26,000 bbl. The board is endeavoring to stabilize the situation so that sudden and frequent changes in allowables may be avoided.

Other Alberta Fields

Outside Turner Valley there are several Alberta pools where small quantities of crude are produced and shipped. In the southern plains area, the Taber field, which at one time gave promise of real development, has gone out of production; but on the Del Bonita structure two wells of the Terminal Oil Co. have been cleaned out and reconditioned and are yielding small quantities of light crude from the top of the Madison. New drilling in this general area is projected. The Red Coulee field still maintains a steady production from seven wells, though no recent attempts have been made to extend it. In the Taber field North Taber Royalties' No. 1, LSD 7, Section 10-11-15w4, was abandoned at 3,202 ft. owing to water intrusion.

In the Steveville field, 110 miles east of Calgary, Standard of British Columbia's No. 1 Princess, LSD 13, Section 22-20-12w4, was drilled to 6,155 ft. to test the Devonian limestone. A heavy gas flow, estimated 65,000,000 cu. ft. a day, was encountered at 5,254 ft., but was shut off; and testing of other horizons is now in progress. The Standard No. 2 Tide Lake, LSD 9, Section 19-18-9w4, is drilling.

While the Wainwright and Dina-Ribstone areas in East Central Alberta continue to produce small quantities of heavy crude, a more important development is indicated by recent completions in the new Vermilion field. Following the drilling of Battleview Oils' No. 1, a couple of years ago, with a gas flow estimated as high as 76,000,000 cu. ft. a day, Battleview's No. 2, LSD 13, Section 20-50-5w4, has been completed at 1,842 ft. as a producer of heavy crude, pumping 124 bbl. a day or better. Franco-Battleview's No. 3, LSD 13, Section 20-48-5w4, got a similar, and possibly larger production, at 1,757 ft. Extensive new drilling is planned.

In the Lloydminster field, in western Saskatchewan and eastern Alberta, efforts are being made, by means of gravel pack, to overcome sanding in several potential crude producers. Some crude is now being shipped. Shaw Petroleums' No. 3, LSD 5, Section 23-49-28w3, was finished around 1,710 ft. with potential estimated 250 bbl. a day; Franco-Triangle's No. 3, LSD 13, Section 14-49-28w3, got 100 bbl. or better at 1,738 ft. New drilling in this area is aimed primarily to develop additional gas reserves for the city of Saskatoon, to which a 167-mile transmission line is now being laid.

In the Alberta foothills Roxana Petroleums' No. 1, Section 8-24-7w5, on the Kootenay dome west of Calgary, was abandoned after testing the Devonian limestone to 6,502 ft., where salt water was struck. In the Waite Valley area National Petroleum Corp.'s No. 3, LSD 4, Section 25-20-4w5, was abandoned at 7,420 ft. when pronounced faulting developed. Tests are drilling in several other foothills areas.

An important development is being undertaken by McColl-Frontenac Oil Co. of Montreal and Toronto which is supplementing its refining operations by undertaking systematic testing of the Moose dome structure west of Calgary, where tests drilled some years ago encountered light crude at 1,533 ft. and wet gas below 2,800 ft. This area has intermittently shipped small quantities of light crude.

Ontario Drilling

In Ontario the major gas companies have continued drilling in the effort to build up their reserves from proven or semiproven fields. The most active area has been the new Malahide field in Elgin County, originally developed by the Union Gas Co., which is laying a transmission line to the city of London. The Union company has completed nine wells, of which seven were commercial producers and two dry

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Pipe-Line Construction Continues at High Rate

PIPE-LINE construction during the first half of 1940 continued at the high level established during 1939—which year saw the construction of almost 5,000 miles of new lines. Moreover, from the amount of work now under construction or definitely planned for the second half of the year, it appears that this year's pipe-line activity possibly may equal the record of 1939, which was the industry's most active in over a decade.

Probably the most outstanding project undertaken during the period under survey was the construction of a 450-mile gasoline line from Port St. Joe, Fla., via Atlanta, Ga., to a point near Chattanooga, Tenn. Construction of this line, by Southeastern Pipe Line Co. (Gulf and Pure interests), was started at the first of the year and has been practically completed except for short sections where the right-of-way is being contested in the courts. Completion of the line may be delayed, however, until after the first of 1941 as it appears that it will be necessary for the state legislature to meet and pass a law specifying that the company is entitled to exercise the right of eminent domain. The next session of the legislature is not scheduled until the first of next year.

The gasoline line is being constructed of 6 and 8-in. pipe and is estimated to cost about $6,000,000. Gasoline is to come by tankers from Gulf Refining Co.'s plant at Port Arthur and Pure Oil Co.'s plant at Smiths Bluff, Tex.

Gas Pipe Lines

Construction of loops and extensions to trunk gas-line systems during the past 2 months indicates that this year's work may compare favorably with that of last year. Although no great amount of work has been done so far, work just beginning or definitely planned for the remainder of the summer bears out this estimate. Panhandle Eastern Pipe Line Co. completed installation of about 137 miles of 22 and 24-in. loops on its trunk line to Illinois and Michigan, and during the next few months will extend these loops by laying about 105 miles more of 22 and 24-in. pipe. Northern Natural Gas Co. is well under way on the looping and expansion of its system from Texas Panhandle to Minnesota, this project involving construction of 109 miles of 24-in. and smaller pipe.

In Indiana, between Montezuma and Crawfordville, Michigan Gas Transmission is laying 53 miles of 24-in. pipe. In Kansas, Cities Service Gas Co. will lay 60 miles of 12-in. gas line from the Cunningham field to Wichita. Louisiana-Nevada Transit Co. completed laying of 70 miles of 8-in. gas line from the Cotton Valley field of North Louisiana to Hope, Ark. Memphis Natural Gas Co. has awarded contract for construction of 92 miles of 18-in. pipe in a looping program in Tennessee, Mississippi, Arkansas and Louisiana. Tennessee Gas & Transmission Co. has applied to the Federal Power Commission for permit to construct a gas pipe line from North Louisiana to eastern Tennessee. Manufacturers Heat & Light Co. is to lay 117 miles of 8-in. gas line between Olean, N. Y., and Brooksville, Pa.

Three large projects from the gas fields of the Oklahoma-Kansas-Texas area to Michigan and Minnesota are planned and possibly one of these may be started in the latter part of the year. Kansas Pipe Line & Gas Co. plans a 1,040-mile main line from Hugoton to South Dakota and Minnesota, and Western Natural Gas Co. and Independent Natural Gas Co. (Phillips Petroleum Co.) plan 770 and 877-mile main lines, respectively, from the Panhandle to Milwaukee.

Illinois Work

In Illinois the largest project was the laying of a 240-mile 12-in. crude line from Stoy to Lima, Ohio, by Sohio Pipe Line Co. to give that state's flush fields another major outlet. Other projects by that company brought its total to about 350 miles of new line. Texas-Empire Pipe Line Co. laid 80 miles of 10 and 12-in. pipe in a looping project. Lawrence Pipe Line Co. (Texas Co.) laid a 68-mile 6-in. gasoline line from Indian Refining Co.'s plant at Lawrenceville, Ill., to Evansville, Ind. Projects getting under way include a 50-mile 8-in. crude line by Illinois Pipe Line Co. from Centerville to Bridgeport, Ill. The company also laid a 40-mile 10-in. line from Martinsville to Brownstown, Ill.

Kansas oil pipe-line construction consisted mainly of a 135-mile 10-in. crude line from the Bemis field in western Kansas to Washington, Kans., where it joined the Stanolind Pipe Line Co.'s trunk line from Wyoming. The line was laid by that company.

Eastern States

In addition to gas pipe-line projects, construction in the eastern states consisted mainly of gasoline line work. Socony-Vacuum Oil Co., Inc., has let contract for 172 miles of 6-in. pipe from its refinery at Buffalo, N. Y., to Syracuse. Shell Oil Co., Inc., has started work on 85 miles of 6-in. line from its marine terminal at Falls River, Mass., to the marketing area of Boston. This is likewise a gasoline line. Between Cygnet, Ohio, and Sarnia, Ont., Canada, Transit & Storage Co. is adding 68 miles of 8-in. loops to its two 6-in. crude lines in order to increase capacity to Imperial Refining Co.'s plant at the latter city. Tuscarora Oil Co. completed the laying of 27 miles of 8-in. crude line between Gardenville and Barton, Pa.

Rocky Mountains

Three gas pipe-line projects got under way in the northern Rocky Mountain area. The Northern Pipe Line Co. has begun construction of a 100-mile 8, 6 and 4-in. line from Casper, Wyo., to the Billy Creek field north of Salt Creek. At Casper it will connect with the Northern Utilities trunk line from the Big Sand Draw and Muskrat gas fields, and at Billy Creek it will connect with the Montana-Dakota Utilities line from that field to Sheridan and Buffalo.

Montana-Dakota Utilities Co. has announced plans for building this summer a 100-mile 8-in. line connecting to the Bowdoin field in Valley and Phillips counties, Montana, with its Baker-Glendive system which serves a number of cities in North Dakota and Minnesota. Cost will approximate $1,000,000. Bids have been called for and the pipe contract awarded.

Third project was that completed by Southern Union Gas Co., a 31-mile extension of 5-in. line from near Albuquerque to Belen, Los Lunas and Isleta, N. M.

There was no major pipe-line construction in this area although steps have been taken toward building a 75-mile 4-in. line to furnish another outlet for Lance Creek crude to supply a refinery at Newcastle, Wyo. It is to be built by A. B. Cobb of Cut Bank, Mont., and Yale Oil Corp., who operates the Newcastle refinery. One other line is also under consideration, a 320-mile 6-in. line from the Cut Bank field of Montana to Spokane, Wash., to be built by Inland Empire Refineries.

Permian Basin

Leading pipe-line development in West Texas was the construction of Basin Pipe Line Co.'s 97-mile 6-in. crude line from the Wasson field to Big Spring and the laying of 15 miles of 5-in. gathering system in the field. The line will give the large field its fourth outlet, and will offer Cosden Petroleum Corp. needed crude for the operation of its refinery.

The Seminole field in Gaines County was given its first outlet since its discovery in 1937 by Magnolia Pipe Line Co. building a 28-mile 8-in. line from the field to Atlantic Pipe Line Co.'s trunk line south of the field.

Project expected to get under way in the second half is that of Texas-New Mexico Pipe Line Co. which will lay a 110-mile 8-in. line from the Slaughter and Duggan fields in the north basin to Midland. There the oil will be moved to Crane in Gulf Oil Corp.'s 8-in. line where it will be placed in Texas-New Mexico's trunk line to the Gulf Coast. The only outlet for the fast-growing Duggan and Slaughter fields at present is a 35-mile line to a refinery at Levelland.

In Southeast New Mexico work consisted mainly of reconditioning and rerouting of lines of Texas-New Mexico, which also laid a 15-mile 4-in. line from its Artesia system to the Maljamar field.

North Texas

Heading the pipe-line development in North Texas was the looping of a 66-mile line by Sinclair Prairie Pipe Line Co. from the K.M.A. field to its Hensley station in Jack County. The company laid an 8-in. loop parallel to a 6-in. line it had laid in 1939 to increase capacity to a total of 23,000 bbl. daily. Second largest construction job during the period was Continental Pipe Line Co. laying a 20-mile 4-in. natural-gasoline line from its K.M.A. plants to its refinery at Wichita Falls. Also several short 5 and 10-mile lines were laid in Clay and Montague counties to provide outlets for recent discoveries.

Gulf Coast and Southwest Texas

Pipe-line construction in the Gulf Coast and Southwest Texas areas consisted largely of short gathering lines to proven fields. The largest project was the reconditioning by Continental Oil Co. of Crude Oil Pipe Line Co.'s system which it purchased shortly after the first of the year. Fifty-three miles of 5½-in. were replaced with 8-in. between San Diego and Corpus Christi, while 66 miles of 4, 5 and 6-in. were replaced or laid at in Jim Wells, Duval and Webb counties.

Magnolia Petroleum Co. completed 139 miles of a combination 6 and 4-in. gasoline line from Corpus Christi to San Antonio. Texas Pipe Line Co. laid 23 miles of 8-in. oil line from the Bay City field to West Columbia in Brazoria County. Magnolia also reconditioned its main trunk-line system from Fort Worth to Beaumont, several loops totaling 57 miles of 8-in. being laid between Sealy and Beaumont.

In coastal Louisiana, United Gas Pipe Line Co. added about 35 miles of 12-in. line in Terrebonne Parish to tie into the company's main line system to Baton Rouge and New Orleans. Approximately 12 miles of 12-in. also was laid to the Lake Long field where it connects to the 12-in. main line of Gulf Natural Gas Corp.

Ratio of U.S. Exports to Imports Shows Marked Change

By J. P. O'DONNELL

NEW YORK, July 23.—The ratio of the United States' exports to its imports of liquid petroleum products showed a marked change in the first part of 1940, according to a summary of data taken from the reports of the petroleum economics division of the Bureau of Mines. These data show that exports exceeded imports in the ratio of 2.3 to 1 during the first 5 months of this year while in the corresponding period of 1939 the ratio of exports to imports was 6.0 to 1. A nearly comparable relationship for the two periods is also shown on wax. The statistics from which these conclusions are drawn included only imports for domestic use and not imports in bond.

EXPORTS FOR FIRST 5 MONTHS OF 1940

(In 1,000 bbl. except wax in 1,000 lb.)

Five months—	Crude oil	Refined products	Gasoline*	Kerosene	Gas oil distillate	Residual fuel oil	Lubricating oil	Wax
1940	20,723	35,200	10,509	1,959	9,197	5,751	5,684	116,611
1939	29,118	48,028	18,936	3,254	13,079	7,693	4,157	100,024
1938	32,753	46,905	19,633	3,656	12,602	6,328	4,036	68,458

*Does not include aviation gasoline, 1,246,000 bbl. in 1940, 2,141,000 bbl. in 1939.

War Curtails Export

The altered relationship between exports and imports was accounted for partially by a decline in the former and partially by an increase in the latter. Exports were greatly curtailed by the war which virtually closed the rich European market with the exception of the British Isles, Spain and Portugal and all shipments to the latter two countries are covered by the English navicert system. Halving of the import tax on crude petroleum and fuel oil probably accounted for the increase in imports.

Combined exports of crude petroleum and refined products totaled 55,923,000 bbl. in the first 5 months of 1940 against 77,167,000 bbl. in the corresponding period of 1939. This was a decline of 21,223,000 bbl. or more than 27 per cent. Exports in the 1940 period averaged but 368,000 bbl. per day against 511,000 bbl. in the like period a year ago.

Combined imports of crude petroleum and refined products, not including imports in bond but those for domestic use only, totaled 24,208,000 bbl. in the first 5 months of this year and compared with 12,815,000 bbl. for the like period of 1939. This was an increase of 11,393,000 bbl. or slightly less than 89 per cent. Imports in the 1940 period averaged 159,000 bbl. per day against 84,000 bbl. in the same period of the year before. Imports of crude petroleum and refined products in bond totaled 7,764,000 bbl. this year against 9,348,000 bbl. last year.

Only lubricating oils and wax showed an increase in exports. Lubricating-oil exports this year were 5,684,000 bbl. against 4,157,000 bbl. in 1939, a gain of 1,527,000 bbl. and the best total for a number of years. The increase in foreign shipments of lubricating oils was 37 per cent. Wax exports this year totaled 116,611,000 lb. against 100,024,000 lb. a year ago, an increase of 16,587,000 lb. or almost 17 per cent. The increase in wax exports is doubtless a reflection of the munition manufacture in Europe.

Gasoline's Loss Greatest

Exports of crude oil in the 5-month period dropped 8,395,000 bbl. from the corresponding total for last year, a decline of 29 per cent, while exports of refined products declined 12,828,000 bbl., a drop of 12 per cent. Gasoline suffered the bulk of the loss in refined products exports, its total falling to 10,589,000 bbl., off 8,427,000 bbl. or 44.5 per cent. Gasoline accounted for about two-thirds of all the decline in refined products. Kerosene exports dropped 1,295,000 bbl. or 40 per cent; gas oil and distillate exports, 3,882,000 bbl. or 29 per cent, and residual fuel-oil exports, 1,942,000 bbl. or 25 per cent.

The percentage changes in the imports of crude petroleum and refined products bordered on the fantastic in some cases. Imports of crude oil increased 3,739,000 bbl. or 37 per cent while imports of refined products rose 7,654,000 bbl. or 284 per cent. Imports of gas oil and distillates showed the greatest percentage gain, jumping from 44,000 bbl. in 1939 to 1,274,000 bbl. in the 1940 period, up 1,230,000 bbl. or 2,800 per cent. Residual fuel oil acted similarly, jumping from 324,000 bbl. in 1939 to 6,482,000 bbl. in 1940, up 6,158,000 bbl. or 1,900 per cent. These gains are a reflection of the record demand for fuel oil that was experienced last winter. Wax imports rose 20,867,000 lb. this year, up 152 per cent.

Philadelphia increased its importance among the oil importing ports on the Atlantic Coast according to data compiled by the American Petroleum Institute. Its imports of crude oil and refined products totaled 8,183,000 bbl. during the first 6 months of this year against 4,899,000 bbl. a year ago. Baltimore, up 900,000 bbl. to 3,217,000 bbl., and Boston, up 1,100,000 bbl. to 2,772,000 bbl., also recorded substantial percentage gains. New York remained outstanding, of course, with a total of 16,805,000 bbl., but this was only a minor gain from last year. Gulf Coast ports also reported a notable gain in imports with a total of 4,215,000 bbl., up 1,800,000 bbl. from a year ago.

West-East Movement Drops

Movement of California oil to Atlantic Coast ports was sharply curtailed this year. Shipments in the first half of 1939 totaled 2,542,000 bbl. against 3,862,000 bbl. last year, a drop of 1,320,000 bbl. or 34 per cent. Gasoliney continued as the principal product in Pacific-to-Atlantic shipment but the total of 1,404,000 bbl. shipped this year was well below last year's total of 1,610,000 bbl. Fuel-oil shipments dropped from 1,462,000 bbl.last year to 448,000 bbl. this year.

Philadelphia further indicated its growing prominence with total receipts of 1,488,000 bbl. or 58 per cent of all the California shipments. New York took 397,000 bbl. against 1,097,000 bbl. last year while Baltimore took 342,000 bbl. and other ports 315,000 bbl.

TABLE 1—IMPORTS FOR FIRST 5 MONTHS OF 1940

(In 1,000 bbl., except wax in 1,000 lb.)

Five months—	Crude oil		Refinery products				Gas oil distillate		Residual fuel		Wax	
	In bond	Domestic	In bond	Domestic	Gasoline	Kerosene	In bond	Domestic	In bond	Domestic	In bond	Domestic
1940	590	13,864	7,174	10,344	61	....	153	1,274	5,829	6,482	3,439	33,891
1939	1,831	10,125	7,517	2,690	....	....	127	44	6,374	324	168	13,034
1938	1,223	9,232	7,746	2,681	95	....	....	....	6,854	1,739	203	15,333

TABLE 2—IMPORTS OF CRUDE OIL AND REFINERY PRODUCTS FOR FIRST HALF OF 1940 AT PRINCIPAL PORTS

(In 1,000 bbl.)

	Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast	Grand total	Crude oil	Fuel oil	Gas oil	Other pet. oils
January	378	370	2,071	986	309	4,114	670	4,784	2,279	2,471	34	0
February	534	533	2,910	1,518	656	6,151	548	6,699	2,739	3,675	122	163
March	631	632	3,072	1,404	705	6,444	824	7,268	3,275	3,615	310	68
April	384	307	2,416	1,034	502	4,643	811	5,454	3,151	1,947	356	0
May	799	413	3,204	1,398	548	6,362	782	7,144	4,259	2,591	242	52
June	491	517	3,132	1,843	431	6,414	580	6,994	4,182	2,468	239	105
First half 1940	3,217	2,772	16,805	8,183	3,151	34,128	4,215	38,343	19,885	16,767	1,303	388
First half 1939	2,348	1,631	16,279	4,899	1,306	26,463	2,437	28,900	16,336	11,240	93	1,231
First half 1938	2,668	869	14,577	5,194	1,245	23,495	1,561	25,056	12,759	11,244	....	1,053

Crude Price Changes, First Six Months, 1940

The only general changes in crude-oil prices the first 6 months of 1940 were confined to California and the Pennsylvania Grade area. The changes are shown in the tables of this page. Posted prices in other areas are the same as published the first issue of each month.

PENNSYLVANIA GRADE OIL PRICES

Posted by Tide Water Associated Oil Co. and New York Transit Co.:	Jan. 1	May 22	June 18
Bradford, Pa.	$2.75	$2.50	$2.25
Allegany, N. Y.	2.75	2.50	2.25
Posted by South Penn Oil Co.:			
Pennsylvania Grade oil in National Transit lines (Bradford field)	2.75	2.50	2.25
Pennsylvania Grade oil in Southwest Pennsylvania lines	2.40	2.15	1.90
Pennsylvania Grade oil in Eureka Pipe Line lines	2.34	2.09	1.84
Corning Grade oil in Buckeye Pipe Line Co. lines	1.12	1.12	1.12
Posted by Pennzoil Co.:			
Pennsylvania Grade oil in National Transit lines:			
Group A — Includes Cochran, Franklin, Hamilton, and Doolittle districts.	2.68	2.43	2.18
Group B — Includes Titusville district.	2.67	2.42	2.17
Group C — Includes Turkey and Tidioute districts.	2.66	2.41	2.16
Group D — Includes Bear Creek and Porkey districts.	2.65	2.40	2.45
Group E — Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kenerdell, Emlenton, Tiona, Lacy, and Kinzau districts. Price depends on length of pipe line to plant at Oil City.	2.63	2.38	2.13
Posted by Pure Oil Co.:			
Cabin Creek, W. Va.	2.34	2.09	1.84
Bradford Hollow, W. Va.	2.34	2.09	1.84
Kelly Creek, W. Va.	2.34	2.09	1.84
Posted by Quaker State Oil Refining Corp.:			
Pennsylvania Grade oil in Buckeye Pipe Line Co. lines	2.30	2.05	1.80
Pennsylvania Grade oil in Eureka Pipe Line Co. lines	2.34	2.09	1.84

CALIFORNIA CRUDE-OIL PRICES

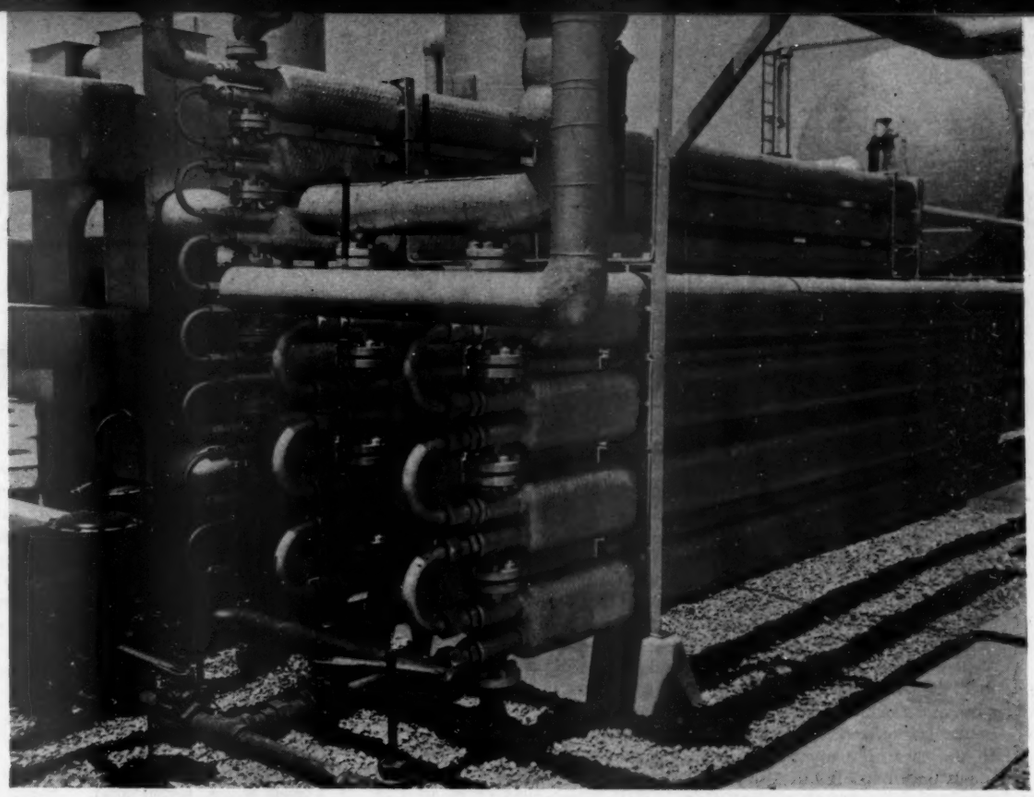
Gravity—	Orcutt Jan. 1	Santa Maria Jan. 1	Rio Bravo May 18	Cole's Levee and Tupman Jan. 1	Cole's Levee and Tupman May 18	Santa Paula Jan. 1	Santa Paula May 18
14-14.9	...	$.42	...	...	...	$.70	$.60
15-15.9	...	.44	...	...	...	.70	.60
16-16.9	$.60	.45	...	...	...	.70	.60
17-17.9	.60	.46	...	...	...	.71	.61
18-18.9	.62	...	...	...	...	.73	.63
19-19.9	.65	...	...	...	...	.75	.65
20-20.9	.68	...	...	...	...	.77	.67
21-21.9	.71	...	...	...	...	.79	.70
22-22.9	.74	...	...	...	...	.82	.73
23-23.9	.77	...	...	...	...	.85	.76
24-24.9	.80	...	...	...	...	.87	.79
25-25.9	.83	...	...	...	...	.90	.82
26-26.9	.86	...	...	...	...	.92	.85
27-27.9	...	...	$.83	$1.00	$.92	.95	.88
28-28.9	...	...	.86	1.03	.96	.97	.90
29-29.9	...	...	.90	1.06	.99	.99	.92
30-30.9	...	...	.94	1.09	1.02	1.01	.94
31-31.9	...	...	.98	1.13	1.06	...	...
32-32.9	...	...	1.02	1.16	1.09	...	...
33-33.9	...	...	1.06	1.19	1.13	...	...
34-34.9	...	...	1.10	1.22	1.16	...	...
35-35.9	...	...	1.14	1.26	1.20	...	...
36-36.9	...	...	1.18	1.29	1.23	...	...
37-37.9	...	...	1.22	1.32	1.26	...	...
38-38.9	...	...	1.25	1.35	1.30	...	...
39-39.9	...	...	1.29	1.39	1.34	...	...
40-40.9	...	...	1.33	1.42	1.37	...	...
41-41.9	...	...	...	1.45	...	...	...
42-42.9	...	...	...	1.48	...	...	...
43-43.9	...	...	...	1.51	...	...	...
44-44.9	...	...	...	1.55	...	...	...
45-45.9	...	...	...	1.58	...	...	...
46-46.9	...	...	...	1.61	...	...	...
47-47.9	...	...	...	...	...	...	...
48-48.9	...	...	...	...	...	...	...

For Newhall, McKittrick, Kern River, Round Mountain and Kern Front crude, Standard posts 60 cents per barrel for all grades. For Elwood Terrace crude (free on board ship), 33°-33.9°, $1.21, with 4 cents added for each degree up to and including 37° and over at $1.37; Wheeler Ridge crude, 19° to 21.9°, 60 cents; 22°-22.9°, 63 cents; 23°-23.9°, 67 cents; 24°-24.9°, 71 cents; 25° and over, 75 cents. On May 18, Union Oil Co. adopted Standard of California prices in all fields in which they both purchase.

CALIFORNIA CRUDE-OIL PRICES

Gravity—	Signal Hill Long Beach El Segundo Jan. 1	Signal Hill Long Beach El Segundo Feb. 1	Wilmington Jan. 1	Wilmington Feb. 1	Seal Beach Jan. 1	Seal Beach Feb. 1	Huntington Beach Jan. 1	Huntington Beach Feb. 1	Inglewood Jan. 1	Inglewood Feb. 1	Playa Del Rey Jan. 1	Playa Del Rey Feb. 1	Olinda-Brea Canyon Jan. 1	Olinda-Brea Canyon Feb. 1	Athens-Rosecrans Jan. 1	Athens-Rosecrans Feb. 1	Torrance Jan. 1	Torrance Feb. 1	Richfield Jan. 1	Richfield Feb. 1
14-14.9	$.80	$.65	$.75	$.60	$.79	$.64	$.78	$.63	$.79	$.64	$.80	$.65	$.76	$.61	...	...	$.80	$.65	$.76	$.61
15-15.9	.80	.65	.75	.60	.79	.64	.78	.63	.79	.64	.80	.65	.76	.61	...	...	.80	.65	.76	.61
16-16.9	.80	.65	.75	.60	.79	.64	.78	.63	.79	.64	.80	.65	.76	.61	...	...	.80	.65	.76	.61
17-17.9	.80	.65	.77	.62	.79	.64	.78	.63	.81	.68	.80	.65	.76	.61	...	...	.80	.65	.76	.61
18-18.9	.80	.65	.79	.64	.79	.64	.78	.63	.84	.71	.80	.65	.78	.65	...	...	.82	.68	.76	.61
19-19.9	.82	.69	.82	.69	.79	.64	.82	.67	.87	.75	.84	.70	.81	.69	...	...	.85	.72	.76	.61
20-20.9	.85	.73	.85	.73	.79	.64	.85	.72	.90	.79	.88	.76	.84	.74	...	...	.88	.75	.78	.65
21-21.9	.88	.78	.88	.78	.79	.64	.89	.76	.93	.82	.93	.81	.88	.78	...	...	.91	.79	.80	.69
22-22.9	.92	.82	.92	.82	.82	.69	.92	.81	.96	.86	.98	.86	.92	.82	...	...	.93	.82	.84	.73
23-23.9	.95	.86	.95	.86	.86	.75	.96	.85	.99	.89	1.02	.92	.96	.86	$.84	$.71	.96	.86	.88	.78
24-24.9	.99	.90	.99	.90	.91	.80	1.00	.90	1.02	.93	1.06	.97	.99	.90	.88	.77	.99	.89	.91	.82
25-25.9	1.03	.95	1.03	.95	.95	.86	1.03	.94	1.05	.96	1.11	1.02	1.03	.95	.93	.82	1.02	.93	.95	.86
26-26.9	1.06	.99	1.06	.99	1.00	.91	1.07	.99	1.09	1.00	1.16	1.08	1.06	.99	.98	.88	1.05	.96	.98	.90
27-27.9	1.10	1.03	1.10	1.03	1.05	.97	1.11	1.03	1.12	1.04	...	...	1.10	1.03	1.03	.94	...	1.00	1.02	.94
28-28.9	1.14	1.07	1.14	1.07	1.10	1.02	1.14	1.07	1.15	1.07	...	...	11.4	1.07	1.07	.99	...	1.03	1.06	.98
29-29.9	1.17	1.10	1.17	1.10	1.15	1.07	1.18	1.11	1.18	1.10	f.o.b.	f.o.b.	1.17	1.10	1.12	1.04	...	1.06	1.09	1.02
30-30.9	1.21	1.14	1.21	1.14	1.19	1.12	1.22	1.15	1.21	1.14	pipe line	pipe line	1.21	1.14	1.17	1.09	...	1.09	...	...
31-31.9	...	...	...	...	...	...	...	...	1.24	1.17	...	...	1.24	1.17	1.22	1.14	...	...	...	...
32-32.9	...	...	...	...	...	...	...	...	1.27	1.20	...	...	1.27	1.20	1.27	1.19	...	...	...	...
33-33.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1.32	1.24	...	...	...	...
34-34.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1.37	1.29	...	...	...	...
35-35.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1.42	1.34	...	...	...	...
36-36.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1.46	1.39	...	...	...	...
37-37.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1.51	1.44	...	...	...	...
38-38.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1.56	1.49	...	...	...	...
39-39.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1.61	1.54	...	...	...	...
40-40.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1.66	1.59	...	...	...	...
41-41.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
42-42.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
43-43.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
44-44.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
45-45.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
46-46.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
47-47.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
48-48.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Gravity—	Whittier East Coyote (La Habra) Jan. 1	Whittier East Coyote (La Habra) Feb. 1	Montebello Jan. 1	Montebello Feb. 1	West Coyote Hills Jan. 1	West Coyote Hills Feb. 1	Santa Fe Springs Jan. 1	Santa Fe Springs Feb. 1	Greeley-Canal Jan. 1	Greeley-Canal Feb. 1	Kettleman Hills Jan. 1	Kettleman Hills Feb. 1	Coalinga Jan. 1	Coalinga Feb. 1	Lost Hills Jan. 1	Lost Hills Feb. 1	Buena Vista Hills, Midway-Sunset, Lakeview area, Elk Hills Jan. 1	Buena Vista Hills, Midway-Sunset, Lakeview area, Elk Hills Feb. 1	Mountain View Jan. 1	Mountain View Feb. 1
14-14.9	$.76	$.61	$.77	$.62	$.78	$.63	...	...	...	...	...	...	$.70	$.60	$.70	$.60	$.70	$.60	...	...
15-15.9	.76	.61	.77	.62	.78	.63	...	...	...	...	...	...	.70	.60	.70	.60	.70	.60	...	...
16-16.9	.76	.61	.77	.62	.78	.63	...	...	...	...	...	...	.70	.60	.70	.60	.70	.60	...	...
17-17.9	.76	.61	.77	.62	.78	.63	...	...	...	...	...	...	.70	.60	.70	.60	.70	.60	...	...
18-18.9	.76	.61	.77	.62	.78	.63	...	...	...	...	...	...	.70	.60	.70	.60	.70	.60	...	...
19-19.9	.78	.65	.77	.62	.78	.63	...	...	...	...	...	...	.71	.61	.74	.64	.74	.64	$.70	$.60
20-20.9	.82	.69	.77	.62	.80	.67	...	...	...	...	...	...	.72	.62	.78	.69	.78	.69	.70	.60
21-21.9	.85	.73	.77	.62	.84	.72	$.78	$.63	...	...	...	...	.74	.66	.82	.74	.82	.74	.73	.64
22-22.9	.89	.77	.79	.66	.88	.76	.78	.63	...	...	...	...	.78	.70	.86	.78	.87	.79	.77	.68
23-23.9	.93	.82	.82	.71	.92	.81	.78	.67	...	...	...	...	.82	.74	.90	.82	.92	.84	.80	.71
24-24.9	.96	.86	.85	.75	.96	.85	.82	.72	...	...	...	...	.86	.78	.94	.86	.97	.89	.84	.75
25-25.9	...	.90	.89	.80	.90	.89	.86	.77	...	...	...	...	.90	.82	.98	.90	1.01	.94	.88	.79
26-26.9	...	.94	.93	.84	1.03	.94	.90	.82	...	...	...	...	...	...	1.02	.95	1.06	.99	.91	.83
27-27.9	...	.98	.97	.89	1.06	.98	.95	.87	$.91	$.83	...	...	...	...	1.06	.99	1.10	1.04	.95	.87
28-28.9	...	...	1.01	.93	1.10	1.02	.99	.91	.94	.86	...	...	...	...	1.10	1.03	1.15	1.09	.99	.91
29-29.9	...	...	1.06	.98	1.14	1.06	1.03	.96	.98	.90	...	...	...	...	1.14	1.07	1.20	1.14	1.02	.95
30-30.9	...	...	1.10	1.02	1.17	1.10	1.08	1.01	1.02	.94	...	...	...	...	1.18	1.11	1.25	1.19	1.06	.99
31-31.9	...	...	1.14	1.07	1.21	1.14	1.12	1.05	1.06	.98	...	...	...	...	...	...	1.29	1.24	1.09	1.02
32-32.9	...	...	1.18	1.11	1.25	1.18	1.16	1.09	1.09	1.02	...	...	...	...	...	...	1.34	1.29	1.13	1.06
33-33.9	...	...	1.22	1.15	1.28	1.22	1.20	1.14	1.13	1.06	$1.19	$1.12	...	...	...	...	1.38	1.34	1.17	1.10
34-34.9	...	...	1.26	1.20	1.32	1.26	1.25	1.19	1.17	1.10	1.23	1.17	...	...	...	...	...	...	1.20	1.14
35-35.9	...	...	1.30	1.24	...	...	1.29	1.23	1.20	1.14	1.27	1.21	...	...	...	...	...	...	...	...
36-36.9	...	...	1.34	1.28	...	...	1.33	1.27	1.24	1.18	1.31	1.25	...	...	...	...	...	...	...	...
37-37.9	...	...	1.38	1.33	...	...	1.37	1.31	1.28	1.22	1.35	1.29	...	...	...	...	...	...	...	...
38-38.9	...	...	1.42	1.37	...	...	1.42	1.36	1.31	1.25	1.39	1.33	...	...	...	...	...	...	...	...
39-39.9	...	...	1.47	1.42	...	...	...	...	1.35	1.29	1.43	1.38	...	...	...	...	...	...	...	...
40-40.9	...	...	1.51	1.46	...	...	...	...	1.39	1.33	...	...	...	...	...	...	...	...	...	...
41-41.9	...	...	1.55	1.50	...	...	...	...	1.43	1.37	...	...	...	...	...	...	...	...	...	...
42-42.9	...	...	1.59	1.54	...	...	...	...	1.46	1.41	...	...	...	...	...	...	...	...	...	...
43-43.9	...	...	1.63	1.59	...	...	...	...	1.50	1.45	...	...	...	...	...	...	...	...	...	...
44-44.9	...	...	1.67	1.63	...	...	...	...	1.54	1.49	...	...	...	...	...	...	...	...	...	...
45-45.9	...	...	1.71	1.67	...	...	...	...	1.57	1.53	...	...	...	...	...	...	...	...	...	...
46-46.9	...	...	1.75	1.71	...	...	...	...	1.61	1.57	...	...	...	...	...	...	...	...	...	...
47-47.9	...	...	...	...	...	...	...	...	1.65	1.61	...	...	...	...	...	...	...	...	...	...
48-48.9	...	...	...	...	...	...	...	...	1.68	1.64	...	...	...	...	...	...	...	...	...	...



In pressure maintenance projects and in gas lifting, gas hydrates cause operators much trouble by freezing the high-pressure return lines. At a large pressure-maintenance project in North Texas one company is using propane refrigeration and diethylene glycol dehydration, economizers and heat-exchanging equipment for which are shown here, to reduce the dew point of the return gas to about 8° F. at 1,800-lb. pressure

ENGINEERING & OPERATING

JULY 25, 1940

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COTTON VALLEY AGREEMENT OFFERS COMPLETE PRESSURE MAINTENANCE
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Oil operators and land and royalty owners of the Cotton Valley field, North Louisiana, have unitized all their holdings in that field to set the stage for beginning of the largest unitized recycling project ever undertaken. The voluntary Cotton Valley agreement established a precedent and furnished an excellent example for formulation of similar, much-needed instruments in other condensate fields. Here significant terms of the agreement are explained.

ROCK-BIT EFFICIENCY AND STUDY OF TOOL-JOINT LIFE, LOUDEN, ILL.
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A large-scale development program in the relatively shallow Louden field of Illinois offers opportunities for the broad study of rock-bit performance and study of tool-joint life. By analysis of data obtained, selection of the proper bit for most efficient operation and development of a means of controlling tool-joint-maintenance expense was made possible.

SUGGESTED FIELD PRACTICES: Less Heat, More Chemical May Increase Profits
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Many oil companies in accounting treating costs do not place sufficient emphasis on losses in oil gravity resulting from breaking the emulsion, but give much prominence to expenditures for treating chemicals. Oftentimes a study will reveal that an overall saving may be had by use of more chemical and less heat or by proper maintenance of lease batteries.

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Cotton Valley Agreement Offers Complete Pressure Maintenance

By GEORGE WEBER

THE Cotton Valley unitization and pressure maintenance agreement became effective at 7 a.m. June 29, 1940. In thus providing for unitized field development, production and recycling, an important step was taken towards improved efficiency and economy of management, and conservation of oil and gas resources in one of the nation's outstanding gas-condensate reserves.

In addition to its importance relating to Cotton Valley, the agreement is of utmost significance in the industry as a whole. The success of pressure maintenance and recycling depends largely on unitization and pooling of production interests. In the case of many fields where gas recycling is not only feasible but also urgent, it is delayed by failure to unitize production. As a voluntary agreement meeting a number of difficult problems the Cotton Valley agreement establishes a precedent and furnishes an excellent example for formulation of similar, much-needed instruments in other such fields.

A clear explanation of the terms of this unprecedented agreement should be prefaced by a brief description of the field. The principal formation concerned in the project is a clean sand, extending uniformly over the regular anticlinal structure of the field, and productive over about 12,000 acres. Several horizons are productive of oil or gas. The shallow Blossom sand was opened to gas production in 1922 and later produced oil on the structure's flanks. In 1926 gas was discovered in the lower Glen Rose formation, and 2 years later oil was first produced from that formation. Deeper sands, which today produce all but a small part of the field's output, were discovered in 1936, in a well which tested gas and condensate in the lower Marine formation but was plugged back and completed in the Travis Peak, in what is termed the Holloway sand.

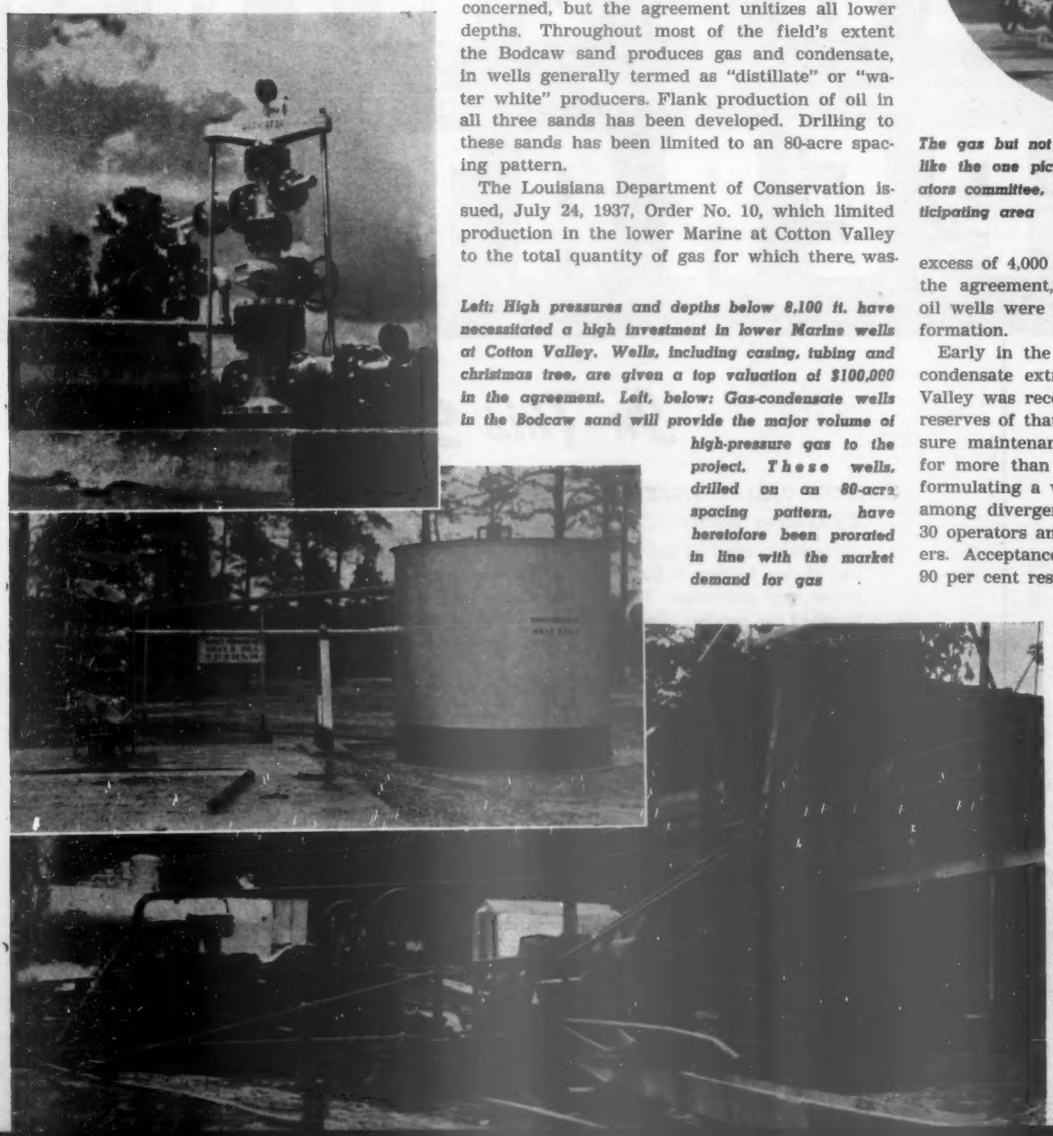
The sands of the lower Marine formation, namely, the D, Bodcaw and lower Bodcaw or Pardee, are those with which the unitization plan is now concerned, but the agreement unitizes all lower depths. Throughout most of the field's extent the Bodcaw sand produces gas and condensate, in wells generally termed as "distillate" or "water white" producers. Flank production of oil in all three sands has been developed. Drilling to these sands has been limited to an 80-acre spacing pattern.

The Louisiana Department of Conservation issued, July 24, 1937, Order No. 10, which limited production in the lower Marine at Cotton Valley to the total quantity of gas for which there was a market demand. This step, taken in the interest of conservation of the large gas reserves in the field, curtailed production, and in view of the cost of the deep wells, greatly reduced the economy of developing the field. Later, upon discovery of oil in the lower Marine formation, such wells were allocated on a flat production basis, with an automatic cut-back for gas-oil ratios in excess of 4,000 cu. ft. per barrel. On the date of the agreement, 79 gas-condensate wells and 43 oil wells were producing from the lower Marine formation.

The gas but not the oil from 17 "D" sand oil wells, like the one pictured, will be delivered to the operators committee, but the wells remain outside the participating area

Early in the development of the technique of condensate extraction and gas recycling, Cotton Valley was recognized as one of the outstanding reserves of that type. Field unitization and pressure maintenance has been under consideration for more than 2 years. The problems involved formulating a workable and equitable agreement among divergent interests represented by about 30 operators and approximately 600 royalty owners. Acceptance of the agreement, by more than 90 per cent respectively of all operators and royalty owners is evidence that it is fair, reasonable and conducive to conservation in interest of all.

The agreement itself is of immediate interest in studying the Cotton Valley project. Its provisions, examined in detail, should serve as a valuble guide in the planning of similar projects in gas-condensate fields.



Left: High pressures and depths below 8,100 ft. have necessitated a high investment in lower Marine wells at Cotton Valley. Wells, including casing, tubing and christmas tree, are given a top valuation of $100,000 in the agreement. Left, below: Gas-condensate wells in the Bodcaw sand will provide the major volume of high-pressure gas to the project. These wells, drilled on an 80-acre spacing pattern, have heretofore been prorated in line with the market demand for gas

Drilling at Cotton Valley has recently been restricted to wells in the oil sands along the flanks, and to Travis Peak wells, but the pressure-maintenance project will necessitate drilling of additional wells for input and production purposes

Two distinct participating areas are outlined. The D sand participating area, shown in the accompanying map is defined and fixed as that portion of all sands between the base of the Travis Peak formation and the base of the D sand within the field. The Bodcaw sand participating area embraces that portion of the Bodcaw sand, outlined in the map. Provision is made for the definition of other participating areas below the base of the Travis Peak, other than the two defined areas, which may hereafter become productive of oil or gas, the extent of such area to be coincidental with the Bodcaw sand participating area as now outlined, upon commencement of production from any such other formation.

Article 1 of the agreement states: "All oil, gas and other hydrocarbons within each separate participating area, as the same may now be fixed or subsequently fixed or enlarged, are, as to each such separate participating area, hereby unitized, and the lands containing same are hereby pooled and communized."

Under Article 2, all unitized substances (defined in the agreement as all liquid and gaseous hydrocarbons within the Bodcaw sand, D sand or other participating area), excepting those substances used in development or production purposes or recycling, are apportioned among and allocated to operators on an acreage basis. Each tract in each participating area shall have allocated to it the percentage of total production from that area, that its acreage bears to the total acreage in the area.

However, the Bodcaw sand and D sand participating areas will be operated as one, and all production and expenses will be allocated 75 per cent to the Bodcaw sand participating area and 25 per cent to the D sand participating area. No operator or royalty owner will have the right to sell, handle, use or dispose of the gas produced from any participating area. The agreement delegates this right to the Cotton Valley Operators Committee, whose status as agent of all operators is explained later in this discussion.

Royalty Payments

After production of unitized substances has been allocated as provided in the agreement, each operator shall be separately liable for and shall pay all royalty obligations on the basis of the allocated production to each tract. The operators committee is authorized to use any unitized substances produced from any participating area for production and development purposes and for repressuring and recycling, provided, however, that as far as efficient operations will permit, no participating area shall have returned to its sand more than the amount of substances produced therefrom, less that amount of substances produced and used in or for such participating area for development or operating purposes. No royalties or oil or gas payments shall be due on any unitized substances produced from any participating areas and used for the purposes last enumerated.

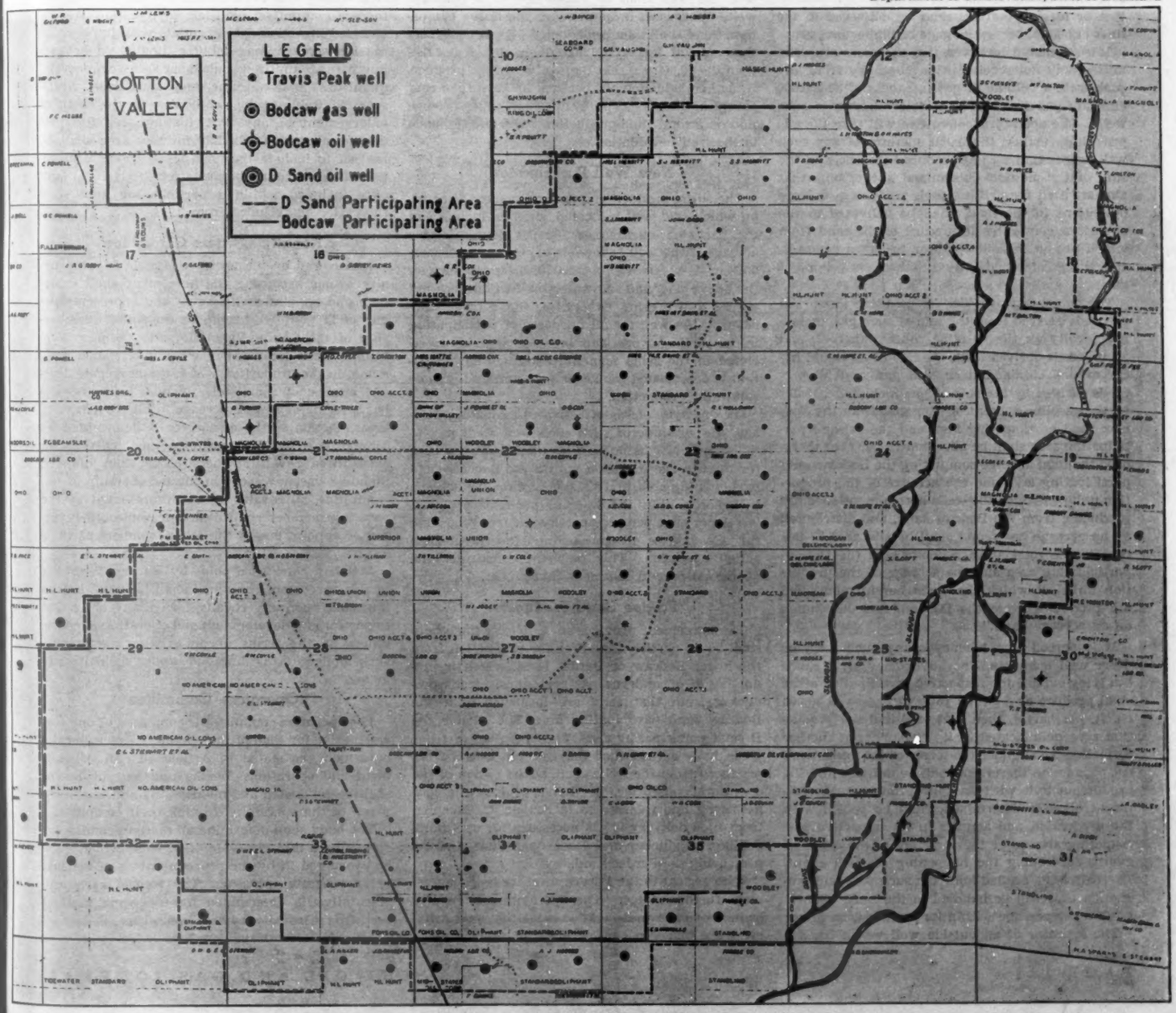
Tax Payments

Each party to the agreement is liable for all severance, production or other similar taxes levied by the state of any lawful taxing authority on the basis of the allocation of unitized substances to his tract or tracts. Such taxes, however, will be paid by the operators committee for the account of the party liable, and the amount shall be charged to and collected from the operator, who in turn will charge to and deduct from royalty due his respective royalty owners, the full amount of such taxes for which the latter are liable.

The possibility of discovery of deeper produc-

Map of Cotton Valley field showing outlines of the two participating areas and location of producing wells

Department of Conservation, State of Louisiana



tion in Cotton Valley is recognized in Article 3 of the agreement. Should such formations below the base of the Travis Peak, other than the Bodcaw sand and the D sand prove productive of oil or gas in the field, the agreement provides establishment of a new area as defined above.

The Davis sand, which shows production possibilities, but is not now producing in any well in Cotton Valley, is agreed to constitute an "other participating area."

Outside Wells

At present 4 Bodcaw sand wells and 17 D sand wells, producing at gas-oil ratios of less than 10,000 cu. ft. per barrel lie outside the bounds of their respective participating areas as defined in the agreement. These flank wells, classed as oil wells by the Department of Conservation, are given base allowables with gas-oil ratio corrections, in a schedule separate from that allocating production among gas wells with greater than 10,000 cu. ft. per barrel.

The agreement provides in Article 4 that the operators in the participating areas, through the operators committee shall lay a gas-gathering line to the separator of each of the above wells. The operators of the outside wells have agreed that the gas, but not the oil, produced in the wells, except such amounts used for drilling fuel, production or lease operation, shall be delivered to the lines at 500 lb. per sq. in. gage or higher pressure.

It is stipulated, however, that the operators committee may not receive in any one day from any such well, a volume of gas in excess of 30,000,000 cu. ft. of gas divided by the total number of such wells. The operators committee will take the gas providing further, that each operator of any such well agrees that all gas produced in excess of the sum of the amount determined above, plus that amount used for drilling fuel, producing or lease operations in the field, shall be delivered to the operators committee for return to the sand from which produced, said operator to pay a compression charge of actual cost on that excess volume of gas.

The agreement provides for payment thus: "All proceeds derived from the sale of such gas, including royalty on the gasoline content thereof, and all proceeds derived from the sale of all liquid hydrocarbons obtained from said gas, and all proceeds derived by the sale of gas including royalty on the gasoline content of such gas, from the Bodcaw sand participating area and the D sand participating area shall be allocated 75 per cent thereof to the total acreage comprising the Bodcaw sand participating area and the acreage of the production units on which the wells herein mentioned are producing from the Bodcaw sand, and distributed on an acreage basis, and shall be allocated 25 per cent to the total acreage comprising the D sand participating area and the acreage of the production units on which the wells herein mentioned are producing from the D sand, and distributed on an acreage basis."

It is agreed that whenever any such well, or other well completed in the Bodcaw or D sands but lying outside the respective participating areas shall produce at a gas-oil ratio in excess of 10,000 cu. ft. per barrel, then that well and the production acreage allocated to it, shall without further formality, come under the terms of the agreement, the production therefrom shall be unitized and the production unit with an appropriate acreage factor hereinafter determined, shall be pooled with the production and acreage in its respective participating area as of the first day of the calendar month succeeding the happening of such event. Thereafter the production from such well and production unit will be handled in the same manner as all other acreage within its participating area.

The operator of an outside well which has exceeded the stipulated gas-oil ratio is allowed 60 days in which to commence operations to recomplete the well in the same formation, or abandon it. He may thereafter recomplete the well in any formation below the Travis Peak formation and not included in any participating area in an effort to produce it at less than the 10,000-cu. ft. per barrel ratio. In case this effort is successful, the well and the allocated acreage shall not become a part of that participating area until the ratio exceeds the 10,000-cu. ft. limit.

New Well Evaluations

Each such well added to the participating area under the above terms will, together with casing, tubing and top of well connections, have an original-agreed value of $100,000 if cased with 7-in. or larger producing string, and $75,000 if the final string is less than 7-in. o.d. The value above stipulated shall be decreased at the rate of 0.833 per cent for each month after the effective date of the contract (June 29, 1940), covering the period during which the well may have produced at less than the 10,000-cu. ft. per barrel gas-oil ratio.

If the well, tested as prescribed by the U. S. Bureau of Mines in Monograph No. 7, is capable of producing 10,000,000 cu. ft. of gas daily with a 2,000-lb. back pressure at the well head on a 12-hour test, the well shall be considered as a standard well. Otherwise, in addition to the above evaluation, there shall then be deducted 7½ per cent from that amount for each 1,000,000 cu. ft. of gas less than the 10,000,000 that the well is able to produce. A further deduction of 1 per cent for each 1 per cent excepting the first 2 per cent of salt-water production on a total fluid-production basis will be made in the well's evaluation.

New Well Participation

The entire production unit not to exceed 80 acres, on which said well is located, shall be included in the participating area as 100 per cent effective acreage if the well is capable of producing 10,000,000 cu. ft. of gas with a 2,000-lb. back pressure on the above test, and salt-water production does not exceed 2 per cent. Otherwise, the acreage allocated to the well for all purposes of participating in the particular participating area, shall be depreciated in the same manner that the well evaluation is depreciated for lower potential and greater salt-water production.

On the basis of his effective participating acreage, the operator of each such well shall pay to the operators committee the sum of $75 per acre for the acreage inclusion within the Bodcaw sand participating area, and $25 per acre for the acreage inclusion within the D sand participating area, less 1 per cent per acre per month from the time the recycling or pressure-maintenance plant is in actual operation. This payment constitutes the operator's part in the plant investment.

Pardee Sand Producers

The agreement provides in Article 5, that there shall be no participating area for production from the lower Bodcaw or Pardee sand, which is productive of oil and gas. At present, six wells producing from that sand are located within the Bodcaw sand participating area, but outside the D sand participating area. The operators of those wells have agreed that the gas, but not the oil, produced from the wells shall, at the option of the operators committee, be delivered into the gas-gathering line referred to in Article 4. Excepted from such delivery is gas necessary for operators' drilling, producing and lease operations and repressuring the Pardee sand.

With regard to the Pardee sand wells the agreement further states: "The operators and royalty owners of such wells acknowledge that said deliveries are made in consideration of their acreage inclusion within the Bodcaw sand participating area, and said royalty owners do hereby waive any additional royalty for such deliveries, it being stipulated that said well or wells shall not be considered as pooled or communized with any participating area, except as to the gas above set forth, although the overlying Bodcaw sand is at all times unitized with the Bodcaw sand participating area."

The operator of one of the Pardee sand wells may at his option and discretion abandon the well, recomplete same in the D sand at a gas-oil ratio not exceeding 10,000 cu. ft. per barrel, or negotiate with the operators committee for sale of the well. If the well is recompleted in the D sand under the above option, then it shall be subject to the provisions of Article 4 regarding wells located outside the participating area.

Exploration and Extension of Participating Areas

The sole right to drill in search of oil, gas or other minerals below the base of the Travis Peak within the geographical confines of the two defined participating areas is vested in the operators committee, subject to minor exceptions, according to Article 6 of the instrument.

In order that any participating area may be extended or enlarged, other than as provided in Article 4, the operators committee and the royalty owners committee, by their joint action are authorized in Article 7 to negotiate with interests in outside acreage reasonably estimated to be productive of unitized substances in commercial quantities, under terms and conditions which seem advisable to the two bodies. In the event of enlargement of any participating area the production allocation schedule for that area shall be revised to include the new acreage. Such allocation changes cannot be made retroactive. No land once included within a participating area shall thereafter be excluded from it.

Royalty Owners Committee

As covered by the terms of Article 8, each royalty owner executing the agreement shall designate and appoint as his agent and representative one of 11 men, who compose the initial membership of the Cotton Valley Royalty Owners Committee. Each member of the committee shall have a vote in the proportion which the aggregate acreage interest of the royalty owners he represents bears to the aggregate acreage in all participating areas. Action of the committee is determined by a majority vote. Each member must represent at least three royalty owners other than himself. Should a vacancy occur in the membership of the committee, all royalty owners represented by the vacating member shall designate some other person or appoint one of the other members as their agent.

Article 9 clarifies a point by stating: "Nothing in this agreement contained shall be construed as imposing upon any royalty owner any obligation to pay for any development and operating expense, unless by the terms of pre-existing agreements such obligation is imposed upon such royalty owner."

Operators Committee

The operators committee is composed of one representative for each of the operators executing the agreement, as stated in Article 10. All development and operations for the unitized substances shall be conducted and managed by and at the expense of the operators, through their committee.

The body shall determine all matters coming before it by a majority vote of acreage, which must be concurred in by the representatives of at least seven separate operators. The vote of each representative is determined by the same method used in the royalty owners committee.

(Continued on Page 176)

Development of

Rock-Bit Efficiency and Study Of Tool-Joint Life, Louden, Ill.

By VICTOR V. HORNER
Carter Oil Co., St. Elmo, Ill.

A.P.I.—**The opportunities offered by a large-scale development program in a relatively shallow producing pool of the Illinois basin are preeminent for the broad study of rock-bit performance and tool-joint life. By strict analysis of data at hand and with little reservation for lack of the abundance of such data, the selection of the proper bit type for the most efficient operation and the development of a means of controlling tool-joint-maintenance expense are available for the resultant reduction of drilling costs. Such analyses are presented and their field applications are included.**

This paper was presented before the annual meeting of the Illinois Basin chapter of the American Petroleum Institute on June 29, 1940, at Evansville, Ind.

THE obvious fact that increased drilling speed results in decreased drilling costs is well recognized. Usually, in the early stages of any drilling program, progress in this direction depends upon the judgment and increased efficiency on the part of the rotary personnel. Initially, essential qualifications of the rotary equipment itself are necessary to propel the bit ahead at the fastest rate, that is to say, mud viscosities, hole size, pump capacities, drilling weights and speeds are interrelated with respect to drilling speed. The rotary rig, therefore, must be so designed that when placed in the hands of the proficient drilling crew it will drill the fastest hole. Economics in conjunction with certain physical problems such as suitability, future development, etc., obviously, limit the extent of such design. It is beyond the scope of this discussion to enumerate the effects of rig design on drilling speed.

Drilling Technique

In Louden, drilling to total depth is performed by rotary tools, usual equipment consists of the mechanical type rig so designed to satisfy portability requirements so necessary for the economical movement over soft and wet terrain. Two 125-hp. diesel engines, a 6 by 12 power-driven slush pump, 4½-in. 16.60-lb. drill pipe equipped with full-hole tool joints, a 100-ton crown block and a 50-ton hook are used. Holes 7⅞ in. in diameter, drilled with rock bits, classified in the "medium rock" series, are the general rule. Rotating speeds vary, ranging from 80 to 150 r.p.m., but are more or less consistent with depth. The majority of the drill-stem weight is carried on the bit. Drilling depths average 1,575 ft.

Development of the Bit-Type Sequence

In the early part of the development program, wells were drilled with six to seven rock bits with time on bottom approximating 80 hours. As drilling progressed, a standardized drilling-mud program was adopted which, with increased efficiency on the part of drilling personnel, resulted in high bit footages and penetration rates. Early efforts to ascertain means of improving bit performance were based on correlations between bits, formations, depths, weights, and drilling speeds. Such detailed analysis offered little substance for any logical conclusion. However, some improvement was made at this time by reducing the water course area in the bit.

Bit record compilation is tabulated by wells from which all analyses have been derived. Table 1 represents the manner in which the record is drafted.

By the latter part of 1939 a new basis for comparison of bit types was developed. Since by that time wells were being completed with four and five bits, the comparison was made between

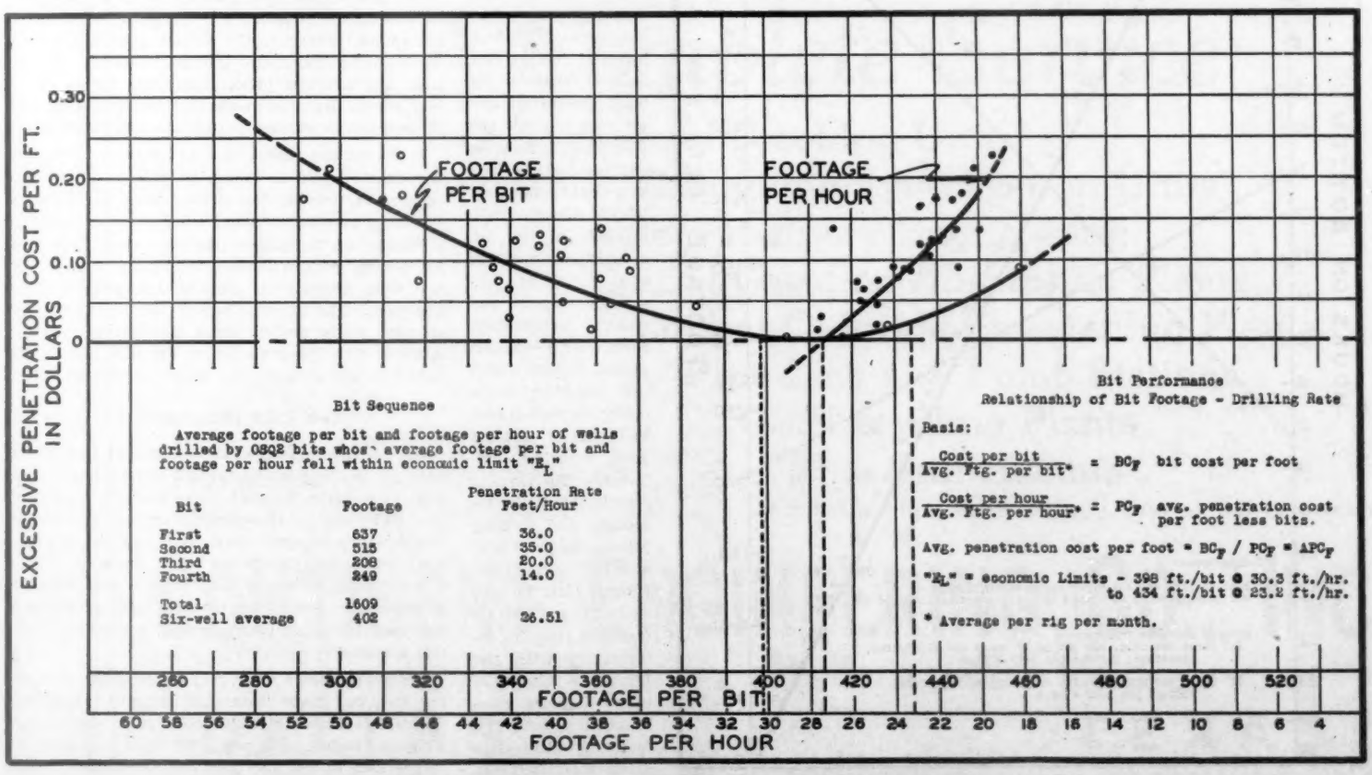

EXCESSIVE PENETRATION COST PER FT. IN DOLLARS
0.30
0.20
0.10
0
FOOTAGE PER BIT
FOOTAGE PER HOUR
Bit Sequence
Average footage per bit and footage per hour of wells drilled by OSQ2 bits whose average footage per bit and footage per hour fell within economic limit "E_L"
Bit | Footage | Penetration Rate Feet/Hour
First | 637 | 36.0
Second | 515 | 35.0
Third | 206 | 20.0
Fourth | 249 | 14.0
Total | 1609 |
Six-well average | 402 | 26.51
Bit Performance
Relationship of Bit Footage - Drilling Rate
Basis:
Cost per bit / Avg. Ftg. per bit* = BC_F bit cost per foot
Cost per hour / Avg. Ftg. per hour* = PC_F avg. penetration cost per foot less bits.
Avg. penetration cost per foot = BC_F / PC_F = APC_F
"E_L" = economic Limits - 398 ft./bit @ 30.3 ft./hr. to 434 ft./bit @ 23.2 ft./hr.
* Average per rig per month.
260 280 300 320 340 360 380 400 420 440 460 480 500 520
FOOTAGE PER BIT
60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10 8 6 4
FOOTAGE PER HOUR

Fig. 1—Effect of bit footage and drilling rate upon total cost per foot

types of bits as used in numerical order. It is noted in Table 2 that both bit footage and penetration rate are considered in the overall cost comparison of bit types. This was determined as follows:

(1) $\dfrac{\text{Cost per bit}}{\text{Average footage per bit}} = BC_F$ (average bit cost per foot)

(2) $\dfrac{\text{Operating cost per hour}}{\text{Average footage per hour}} = PC_F$ (average penetration cost per foot less bits)

(3) $BC_F + PC_F =$ Average total penetration cost per foot

Also, in Table 2 it is discernible that types most suitable for use as first, second, third and fourth bits are B, B, A and B respectively. It is recognized that in any such comparison based on average bit performance, the number of bits used of any one type must be considered. For example, in Table 2, under "second bit" group, the performance of two Type B bits is compared with the performance of 43 Type C bits; consequently, the insufficient number of the former necessitates trial of this type in greater numbers before any definite choice is made. This means of bit-type selection is based on actual field performance and the average achievements of a large number of bits.

TABLE 1—BIT RECORD COMPILATION

Well No.	No. of new bits	First bit / Third bit Type	Pulled	Ftg.	Hrs. run	Ft./ hr.	Second bit / Fourth bit Type	Pulled	Ftg.	Hrs. run	Ft./ hr.	Well total Ftg.	Hrs.	Ft./ hr.	Ft./ new bit
1	4	A	660	660	17	38.9	A	1,087	427	17¼	24.7				
		A	1,332	245	11	22.2	A	1,574	242	13	18.6	1,574	58¼	27.05	393.5
4	4	A	789	789	25¾	30.6	B	1,294	505	24¼	20.8				
		C	1,435	141	18½	7.6	B	1,590	155	15½	10.0	1,590	84	18.9	397.5
2	4	A	639	639	13¼	48.2	A	1,100	461	16¾	27.5				
		A	1,360	260	8	32.5	A	1,586	226	16¾	13.5	1,586	54¾	28.95	396.5

TABLE 2—BIT TYPE PERFORMANCE COMPARISON

Size	Make and type	No. new bits	No. re-run bits	Footage Total	Footage Average new bit	Hours rotating	Average footage per hour	Bit cost Av. bit cost per foot	Bit cost Av. penetration cost per ft. (less bits)	Bit cost Av. total cost per ft.
					First Bit					
7⅞ in.	A	2	1	1,557	778.5	58½	26.62	$0.1092	$0.4147	$0.5239
	B	28	2	19,439	694.3	628½	30.93	0.1224	0.3569	0.4793
	C	23	..	11,636	505.9	374	31.11	0.1680	0.3549	0.5229
	D	1	..	640	640.0	24¾	25.86	0.1328	0.4269	0.5597
	First quarter	54	3	33,272	616.1	1,085¾	30.64	$0.1380	$0.3603	$0.4983
					Second Bit					
7⅞ in.	A	15	..	5,780	385.3	267½	21.61	$0.2206	$0.5109	$0.7315
	B	2	..	848	424.0	30½	27.80	0.2005	0.3971	0.5976
	C	43	2	21,711	504.9	860½	25.23	0.1683	0.4376	0.6059
	D	2	..	821	410.5	32¾	25.07	0.2071	0.4404	0.6475
	First quarter	62	2	29,160	470.3	1,191¼	24.48	$0.1807	$0.4510	$0.6317
					Third Bit					
7⅞ in.	A	25	2	9,015	360.6	414	21.78	$0.2357	$0.5069	$0.7426
	B	35	1	9,889	282.5	514¾	19.21	0.3008	0.5747	0.8755
	C	1	..	337	337.0	18½	18.22	0.2522	0.6059	0.8581
	First quarter	61	3	19,241	315.4	947¼	20.31	$0.2695	$0.5436	$0.8131
					Fourth Bit					
7⅞ in.	A	26	1	4,868	187.2	358½	13.58	$0.4540	$0.8130	$1.2670
	B	30	3	6,755	225.2	484¾	13.94	0.3775	0.7920	1.1695
	C	1	.	153	153.0	17	9.00	0.5556	1.2267	1.7823
	First quarter	57	4	11,776	206.6	860¼	13.69	$0.4114	$0.8064	$1.2178

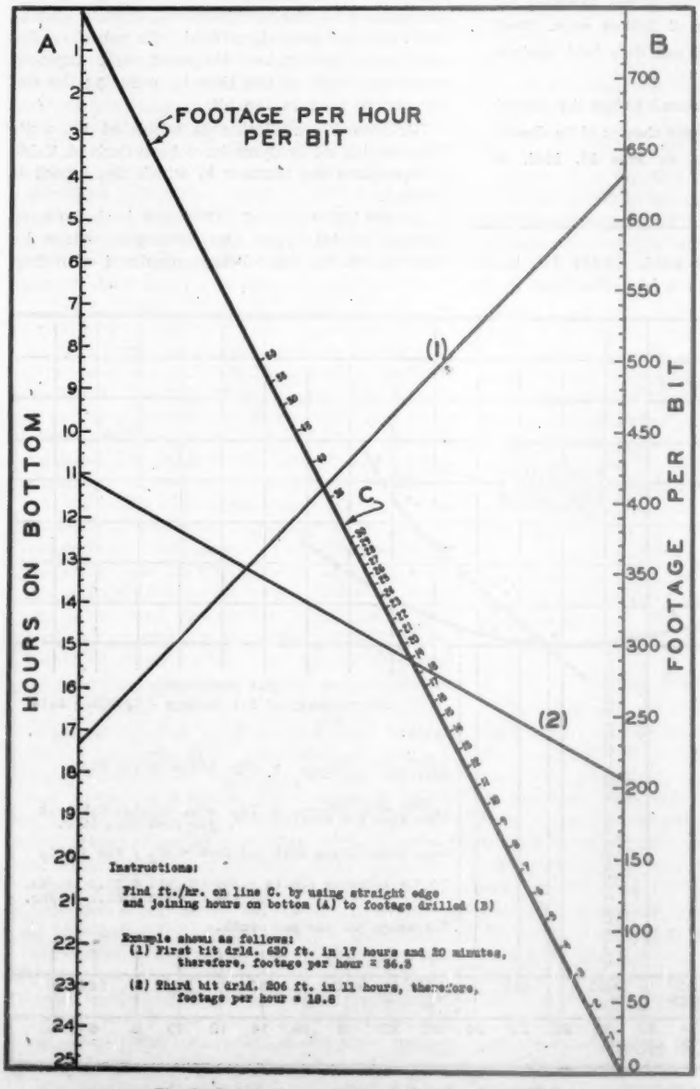

A
B
FOOTAGE PER HOUR PER BIT
HOURS ON BOTTOM
FOOTAGE PER BIT
(1)
(2)
C
Instructions:
Find ft./hr. on line C. by using straight edge and joining hours on bottom (A) to footage drilled (B)
Example shown as follows:
(1) First bit drld. 630 ft. in 17 hours and 20 minutes, therefore, footage per hour = 36.3
(2) Third bit drld. 206 ft. in 11 hours, therefore, footage per hour = 18.8

Fig. 2—Penetration rate chart in the Louden field

Application of the selected bit sequence in field practice resulted in an increase in bit footages with a corresponding increase in penetration rates. Frequently, wells were drilled with three bits, but a decrease in penetration rate per well was evidenced, which established the fact that definite relationship between bit footage and drilling rate existed whereby the total penetration cost per foot (bit cost per foot plus penetration cost per foot) is fixed at a minimum. Study in this direction culminated in the analysis presented in Fig. 1. It is constructed from rig-month penetration costs over a 6-month period, during which the sequence tentatively adopted as best had been applied with growing uniformity. The varying effects of both bit footage and drilling rate on the total penetration cost are shown, with the rate relationship so oriented that its intersection with the former is located at their common minimum total cost. The fact that field data established such congruous trends is interpreted as significant. Their intercept when projected to the abscissa establishes a well average of 413 ft. per bit at 27.4 ft. per hour. Arbitrarily, an economic range per well of 398 ft. per bit at 30.3 ft. per hour to 434 ft. per bit at 23.2 ft. per hour was selected. Individual wells drilled with the selected-bit sequence, and having averages between these limits, thus served as a basis for determining the optimum footage and rate for each separate bit in the sequence. Fig. 1, therefore, provides a control method for applying the sequence approach to further improvements in drilling rates and costs.

A "penetration rate chart," (Fig. 2) prepared in nomograph fashion, was supplied to the field personnel, whereby, the driller may determine, by knowing the hours the bit has been on bottom, the average penetration rate for a bit at any depth. By this means the conditions so prescribed can be carried out on the derrick floor.

It is not the intent of this analysis to dictate the exact depth at which to pull each bit, but rather, to provide the driller with a means of attaining most economical results. . . . Improved efficiency on the part of the personnel, improved bit design, etc., will tend to further reduce the low total penetration costs so indicated by this approach. The average penetration cost per well of nine wells drilled since the advent of this practice was 1½ cents below the zero line established in the relationship illustrated in Fig. 1.

Tool-Joint Maintenance

The two factors affecting the life of tool joints used for drilling in the typical Illinois basin pool are (1) outside-diameter wear and (2) tool-joint face and thread maintenance. Control of tool-joint maintenance expense, then, is an individual problem. Where tool joints are often replaced within the life of a string of drill pipe, a maintenance problem is at hand, whereby the factors affecting tool-joint life must be recognized and proper control initiated.

Outside-diameter wear may be studied by making frequent inspections and actually tabulating the outside diameter of the worn joint from which a figure "inches wear per 1,000 ft. of hole drilled" can be ascertained and used for comparative analyses. A representative number of joints are se-

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TABLE 3—TOOL-JOINT SERVICE COMPARISON

Type—	Total footage drilled	Original o.d. at face (in.)	Final o.d. at face (in.)	Face wear on 1,000 ft. of hole drld. (in.)	Cost per ft. drilled
Type A	73,006	5.7500	5.1094	.0088	$.0364
Type A	66,483	5.7500	5.1562	.0089	.0400
Type A	62,576	5.7500	5.1562	.0095	.0425
Average	67,355				$.0395*
Type B	29,241	5.7500	5.3750	.0128	$.0564
	42,061	5.7500	5.4062	.0082	.0392
Average	35,651				$.0463†

*Cost per foot based on installation of 60 tool joints. This includes price of tool joints, removing old joints, rethreading pipe and applying new joints.
†Cost per foot based on repair of 60 joints at $27.50 per joint.

lected from a string of pipe and circumferential measurements taken at the faces, middle and backs of tool-joint boxes and pins, and are converted to units of outside-diameter wear per section of hole drilled." The fact is recognized that tool-joint wear does not vary directly with footage drilled, since clearance between tool joint and wall of the hole increases with tool-joint wear. Nevertheless, for all practical purposes, the wear per 1,000 ft. can be used to compare tool-joint service over any period. Also, it is often the case that within a common area, outside-diameter wear varies between joints on different strings. This fluctuation is due to such factors as (1) hole and tool-joint sizes, (2) drilling-mud characteristics, (3) formation, (4) weight and rotating speeds and (5) metallurgy of tool joint. Whether this variance is of sufficient magnitude that, when expressed in units of "tool-joint cost per foot drilled" it will justify detailed study of the many variables effecting such, is again an individual problem. Various means of controlling expenses due to outside-diameter wear are employed, such as hard-facing materials, oversized joints, rebuilt joints, etc., but the effectiveness of such methods can be compared only on a cost-per-foot basis derived from frequent inspections and outside-diameter measurements.

Tool-joint face and thread maintenance is imperative for long life. In some localities this is the prominent problem that can be controlled by rigid inspection, service, and education as to the proper care of tool joints. Tool-joint design is often considered in the solution of this problem.

Tool-joint wear has not been severe at Louden. An average of 65,887 ft. per string has been drilled by eight strings of 4½-in. full-hole tool joints at an approximate cost of $0.041 per foot of 7⅞-in. hole. Table 3 illustrates the service record of three strings of conventional tool joints and two strings of built-up tool joints. It is noted that the wear per 1,000 ft. of hole drilled for the former does not vary greatly. . . .

Summary

In conclusion, the operator can materially reduce drilling costs by strict analysis of the facts at hand, employing such tactics as are enumerated as follows:

Bit efficiency.

1. To maintain detailed records of bit performance by wells including such data as footage per bit, hours on bottom per bit and well average footages per bit and penetration rates.

2. To determine proper type of bit for efficient operation by comparison of types as used in numerical order.

3. To ascertain the economic range of bit footage and penetration rate by establishing the relationship between the two and its effect on the total cost, and with the choice of wells whose averages fall within this range arrive at the optimum footage and rate for each separate bit in the sequence.

Tool joints.

1. Periodic inspection with orderly compilation of data pertaining to outside-diameter wear and condition of tool-joint faces and threads can be utilized in providing comparative means of controlling tool-joint maintenance costs.

That this procedure is applicable in an area where stratigraphic characteristics are more or less regular and where activity is stimulated to the extent of providing initial data, has been indicated by the results at Louden.

Acknowledgment

It is the author's wish to express his gratitude to the Carter Oil Co. for its liberal consent to publish the information in this paper.

Suggested FIELD PRACTICES . . No. 6

Less Heat, More Chemical May Increase Profits

By T. P. SANDERS

MOST oil companies employ a cost-accounting system which gives prominence to expenditures made for treating compounds and tank equipment but unfortunately does not call attention with equal emphasis to changes in oil gravity. As a result, the pumper or treater feels it necessary to use treating compounds sparingly, adding heat to accomplish most of the oil-water separation. Heat has no ill effects when it is applied to pressure vessels in a properly designed treating plant, but in the average lease plant it drives off the most valuable part of the crude.

In most fields crude is bought on a gravity basis, the premium being 2 cents per barrel for each additional degree A.P.I. gravity. For each degree of gravity lost in handling, there is a loss in volume of approximately 2½ per cent. The combined loss of revenue resulting from loss of gravity and loss of volume can be determined for various conditions from the chart, Fig. 1. On leases producing as much as 100 bbl. per day, an increase in gravity of 1° will be sufficient to pay a worker's wages.

Since loss of gravity is always accompanied by a loss in crude-oil volume, the stripper leases where production is not prorated offer the best opportunity for increasing immediate profits through reduction of heat. Such leases are usually equipped with treating systems poorly adapted to the use of heat. On most leases of this type it has been found economical to use sufficient chemical compound so that the oil can be treated cold. Some oil, however, cannot be cold-treated with chemical alone, but the heat can be limited to the minimum and measures can be taken toward vapor recovery. In some cases when oil is heated the lighter vapors are lost to the gasoline plant. This does not represent a real loss, but many operators prefer to sell this volume as crude oil, where it may bring in four times as much revenue.

Another element of gravity control is proper maintenance of lease batteries. In order to hold down expenses, tanks on old leases are often kept in ill repair. Gaskets may be missing or stack valves may be inoperative so that no pressure whatsoever is maintained on the oil. This may appear on the books as economic operation, but actually it is wasteful to buy a tank designed to hold pressure on the oil and then use it as if it were a rain barrel. Stack valves on tanks should be checked from time to time, especially after they have been moved and reassembled. On one large battery of tanks which had been moved from another field, the writer found that 2-ounce stack valves were in use, although the tanks themselves had been designed to carry about 1 lb. of back pressure.

Agitation of oil in tanks is one of the greatest enemies of gravity conservation. A degree of gravity may be saved by introducing the oil into the tanks through down pipes from the deck openings to spreaders at the bottoms. On leases where oil is rolled in the tanks with gas, an even greater savings can be made merely by discontinuing this wasteful practice.

For additional information concerning gravity conservation see Pages P-20 to P-38 of Producing Equipment Directory.

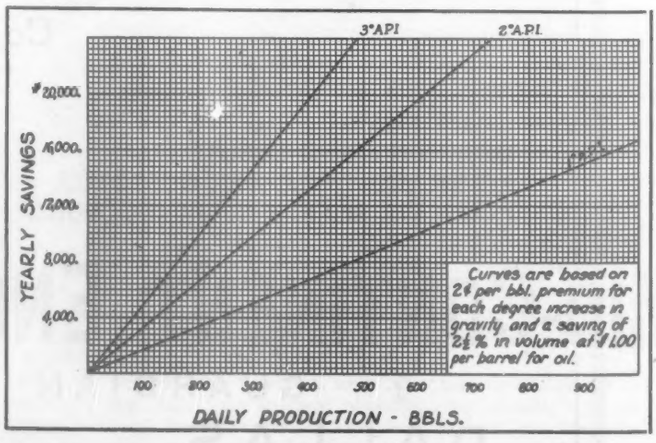
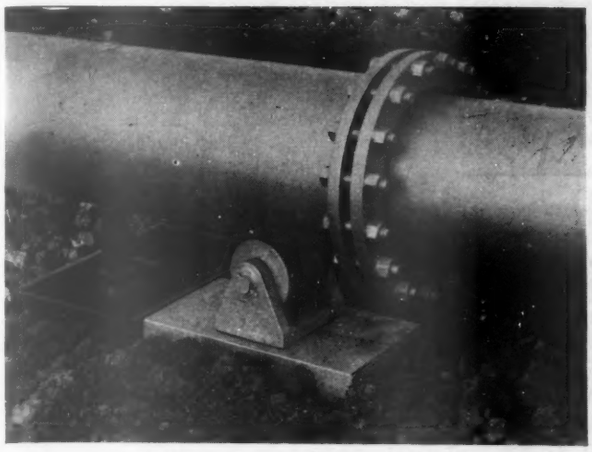


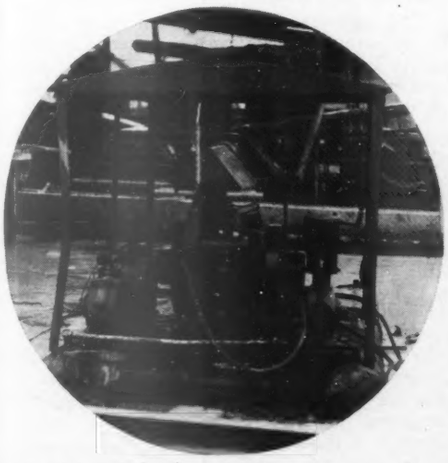
Fig. 1—Chart for determined the saving in dollars per year resulting from an increase in gravity

Operating Ideas



Roller Relieves Strain on Large Gas Line

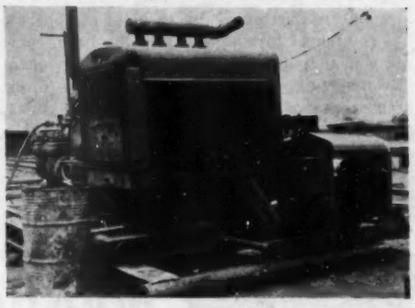
Changes in the length of the outer portion of a sleeve joint can cause no strain on the fixed end in the installation shown here. This is due to the other end being supported on rollers instead of being bolted to a foundation. The accompanying picture shows such an installation as part of a new gas system in one of the Illinois flush fields.



Auxiliary Unit Is Small But Complete

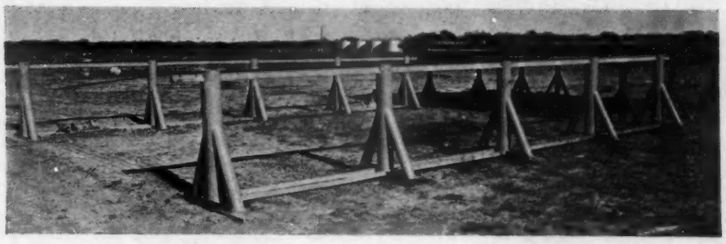
For several years an Illinois contractor has used the assembled unit shown in the accompanying photograph. Though small in size, the unit combines many necessary services at the rig. A small engine, which can use either gas or gasoline, drives a pump, a compressor, and a generator. The pump furnishes water for drilling mud, for washing the floor, for filling radiators, and for other miscellaneous duties. The compressor furnishes compressed air for starting the engines. The skids upon which the unit is mounted serve as tanks for compressed air.

Automobile Engine Starts Slush-Pump Engine



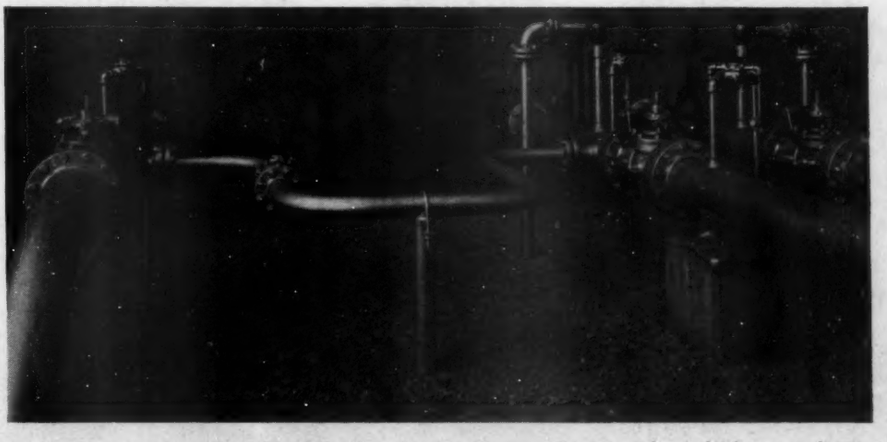
An Illinois operator uses a salvaged automobile engine for starting a large slush-pump engine. The small engine is mounted on a portable welded frame with all its accessories, including a 2-gal. gasoline tank, intact. Thus if occassion should arise, this small power unit could be detached readily for temporary use elsewhere. The small engine is cranked and drives the large engine through V-belts. The large engine is mounted on one skid which is placed on the pump skid, while the small engine is separately mounted.

Heavy-Duty Casing Rack From Steel Rails



In the Hull-Silk field of North Texas one drilling contractor has designed the pipe rack shown in the accompanying photograph for use on two of his rotary rigs. A steel rail is welded into notches cut into the vertical 8-in. used pipe, so that only one support is needed at either end of the pipe. Lengths of channel iron are welded to the bottom, with short lengths of steel placed crosswise to the main member and tied to the legs by short supports, to form a substantial base of the rack. In use, two racks are placed on either side of the pipe-rack walkway. The latter is supported by similar legs, placed at intervals throughout its length.

Compressor Lines Tied Together With Small Pipe



At a refinery or booster plant handling large volumes of gas, and in which several compressors are operated to handle the volume, it is some times necessary to shutdown one of the engines for repairs. In order that the capacity of the adjacent engine can be increased somewhat a bypass line from the operating line to the idle line is sometimes used. The accompanying picture shows an installation at a gas-booster station at which a 3-in. pipe connects the two major lines taking gas to the compressors.

Cotton Valley Agreement Offers Complete Pressure Maintenance

(Continued from Page 170)

As an agent for all operators concerned in the agreement, the operators committee continues the work of a temporary engineering committee, which although not acting as the agent of the operators, has conducted investigations in the field, contributing to the adoption of pressure maintenance by gas recycling. The new committee is directed under terms of Article 11 to continue the consideration of such plans and as soon as practicable to arrange for the construction of a modern recycling pressure-maintenance and liquid hydrocarbon extraction and processing plant. The plant must be designed, constructed and maintained by the committee to comply with the best-accepted engineering practices, adapted to the most efficient, practical and economic operation.

Cost Participation

Operators signing the agreement will pay for the recycling project in the proportion that they share in the original allocation of production from the two participating areas as set out under Article 2. Such payments shall be made direct to the operators committee within 30 days of assessment by that body, provided, however, that the committee may allow such payments to be made by installments, in which event each operator shall pay the appropriate percentage of each installment so that all operators shall contribute toward each installment ratably.

At the date of the contract, a total of 87 wells were producing unitized substances from the Bodcaw and D sand participating areas. Under Article 12, each of these wells, together with casing, tubing and top-of-well connections, but exclusive of separators, derricks, tanks, and other surface equipment is given a value of $100,000.

Since all of these wells will be incorporated into the recycling program, all signatory operators agree that each respective operator owning one or more wells, or an interest therein, is entitled to receive out of unitized substances the stated value of each well so owned. It is further agreed that 80 per cent of ⅞ of the unitized substances allocable to each tract in the two participating areas, as such unitized substances are produced from and after the effective date of the agreement, shall be delivered to operators thus owning said wells in the proportion that their respective ownership in the aggregate of such wells bears to the aggregate number of such wells. This percentage of production shall be delivered until the total agreed value of the wells shall have been liquidated. The operator so receiving such production agrees to receive the same as having a stipulated value at the time of allocation equal to the posted price then prevailing in the Cotton Valley field for production of the same kind and quality.

As set forth in Article 13, each operator agrees to pay on a participating-acreage basis all expenses of operation and development of each respective participating area. The operators committee will render to each operator on or before the fifteenth day of each calendar month, a statement of expenditures for the preceding calendar month. Payment of each operator's share in these expenditures is due within 15 days after receipt of such statement. Upon the failure of any operator to make such payment within the time allotted, the operators committee may retain possession and if necessary, dispose of the unitized substances allocated to such operator. In event of such disposition, the proceeds shall be used to liquidate the amount owed by the operator, and the balance, if any, paid to the operator.

A working fund of $50,000 is advanced to the operators committee, each operator paying his proportional part, based on participating acreage.

The operators committee is directed by Article 14 to carry adequate workman's compensation, public liability, property damage, explosion, fire, and other necessary insurance, on behalf of and in the name of the operators.

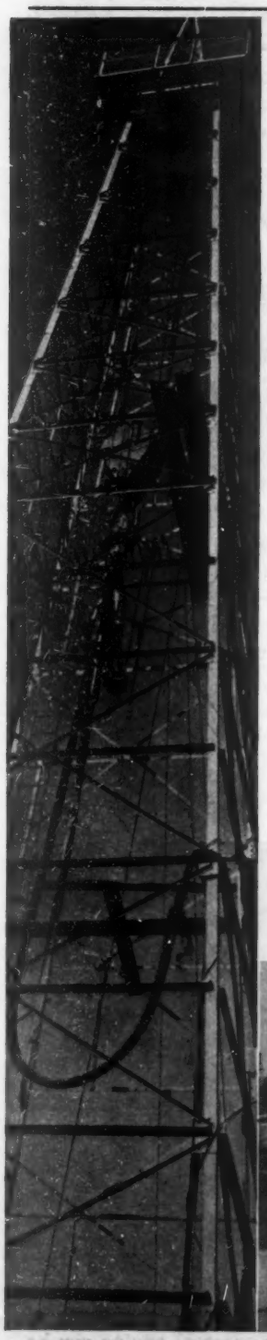
Article 15 states: "Insofar and only insofar as this agreement relates to the correlative rights of the operators, each to the other, the same may be amended without the concurrance of the royalty owners; provided that no such amendment shall in any manner abridge, modify, or affect any rights of said royalty owners."

Under Article 16, each operator represents that he is owner of the operating rights to the tracts described as owned by him, and agrees to indemnify and hold harmless every other party to the agreement in the event he is not the owner of the rights so represented. Subject to these representations, the effective acreage interest of such operator in the unitized substances is permanently vested in him, irrespective of whether or not the operators committee shall perpetuate the title to such operating rights with respect to such tract or tracts.

When any of the physical properties jointly owned by the operators in any participating area are no longer used or useful for the purpose of carrying out the provisions of the agreement, the operators committee, under Article 17, shall salvage and dispose of the same and account to the operators, on their then participating basis, for the net proceeds therefrom.

The liabilities of the operators in the contract agreement shall always be several and not joint; and it is their intention to create the relationship of principal and agent between each of the operators and the operators committee.

It was provided that the agreement would be binding upon and inure to the benefit of all par-



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ties signing it, provided that it was ratified by the owners of 80 per cent or more of the operating rights and royalty interest, respectively, expressed in acres, in the Bodcaw sand participating area, prior to July 1, 1940. Since the required percentage of both groups signed the agreement before the stipulated date, the agreement went into effect.

State Order

On that date, the Louisiana Department of Conservation issued Order No. 108, supplementing and amending Order No. 10, providing special rules and regulations governing the production of gas and oil from any depth of 8,000 ft. or more below the surface in the Cotton Valley field.

The new instrument ordered: "That any operator or operators in the Cotton Valley field are permitted to inject gas produced therefrom, either before or after it has been produced, into the formations below the base of the Travis Peak formation.

"In addition to the total daily field gas allowable provided for in Order No. 10, there may be lawfully produced all gas which, less that amount thereof as is utilized or unavoidably lost in recycling operations and the extraction of distillate, gasoline or other liquid hydrocarbons, is necessary for the accomplishment of pressure maintenance as is hereinafter authorized by this order, and is returned to any formation below the base of the Travis Peak; and all such distillate, gasoline or other liquid hydrocarbons obtained from such gas before return to the formation shall be lawfully produced, subject to all subsequent orders of the commission.

"That when any well is used or is being prepared for use for the purpose of returning gas to the formations specified, the daily gas allowable for such well shall be ascertained in accordance with Order No. 10, and the daily gas allowable for such well shall be distributed among the other wells in the field from which gas is produced for the purpose of injection through such input well.

"That the gas production from any well or wells which produce with the gas a mixture of liquid hydrocarbons at a gas-oil ratio of not more than 10,000 cu. ft. of gas to each barrel of said liquid hydrocarbons shall be measured by a suitable orifice meter installed in accordance with recommendations of the American Gas Association Gas Measurement Committee Report No. 2. . . .

"On the basis of the oral testimony and engineering data, and exhibits introduced into the record . . . the commission finds as a fact that in order to conserve the natural resources of the state, to prevent waste of oil and gas as defined by law, and to avoid excessive loss of reservoir energy from the productive formations in the Cotton Valley field below a depth of 8,000 ft., it is necessary that gas in excess of the reasonable market requirement should be returned to the producing formations in order to maintain reservoir energy and to obtain the greatest ultimate recovery of both the gas and liquid hydrocarbons produced therewith. The commissioner further finds . . . that the reintroduction of such gas into the producing formations can best be accomplished as a practical operation by coordinated pressure maintenance of the entire producing areas through the injection of such gas."

Is Reasonable Contract

The commission further ordered that the Cotton Valley untization and pressure maintenance agreement executed by the Ohio Oil Co. and others as operators, with and to E. L. Stewart and others as royalty owners, was a fair and reasonable contract, susceptible to practical, economic and efficient operation, conductive to conservation, the prevention of waste, the obtaining of the greatest ultimate recovery, the just and equitable adjustment of correlative rights of both operators and royalty owners and that it was therefore approved by the commission, and the operators and royalty owners subject to the agreement were authorized and permitted to conduct all operations contemplated thereby.

Operators Outside Agreement

From the terms of the order it is seen that operators who have not signed the agreement may continue to produce properties as under Order No. 10. After determining the total quantity of gas to be lawfully produced each month, the commission allocates 75 per cent among the gas wells on an acreage basis, and the remaining 25 per cent on a bottom-hole pressure basis.

Since the new order allows additional production from the specified formations only on the premise that the gas in excess of that required for market demand, field use and condensate extraction, such wells as are not incorporated in the Cotton Valley agreement or other recycling projects, will continue to produce on the former allowable basis.

Work Progress

Field studies and surveys of existing recycling plants are being actively carried out by operators, indicating an early decision on the type of recycling plant to incorporate in the Cotton Valley project. Although details are not yet settled, the plant will be capable of processing at least 150,000,000 cu. ft. of gas daily, with an estimated daily production of 10,000 bbl. of condensate. Contract for the plant will probably be let on a turnkey basis, and the Cotton Valley Operators Committee, as provided by the agreement, will supervise construction and operation of the plant, and manage, control and be responsible for the entire project, as agent for the signatory operators.

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Progress in METALS

By W. L. NELSON

Draw-Works-Drive Sprockets

Often the manner of presenting superior steels is to justify an extra cost by the superior qualities of the product. Such an approach is logical, but it is far better to be able to present a superior material at little or no extra cost because of greater ease of shop fabrication. In some degree this has been accomplished by the Beaumont Iron Works of Beaumont, Tex., in manufacturing cast draw-works sprockets from nickel-chromium-molybdenum steel.

The steel used for these sprockets, according to the Moly Matrix of August 1939, has the following approximate analysis and physical properties:

	Per cent
Carbon	0.33
Manganese	0.84
Nickel	1.24
Chromium	0.44
Molybdenum	0.33
Tensile strength, p.s.i.	107,000
Yield point, p.s.i.	79,500
Elong. in 2-in., per cent	20
Brinell No.	229

Such a steel is similar to the S.A.E. 4300 series except that less nickel and less chromium is used—which results in a somewhat lower material cost. In cases where extreme wear resistance is required, the sprocket teeth are hardened to 400-500 Brinell by flame hardening. The heat treatment for obtaining the excellent physical properties shown above, consists of annealing at 1,750° F., machining, normalizing at 1,700° F., and drawing at 1,175° F.

Centrifugally Cast Brake Drums

Abstract: "Brake Drums Cast Centrifugally" by H. H. Fairfield and M. G. Eldred, Canadian Metals & Met. Inds., Vol. 3, Feb. 1940, pp. 31-34. Taken from Metals and Alloys, June 1940.

By casting in a permanent mold, it is possible to produce castings more uniform in size and balance than is possible by sand casting. Almost 90 per cent of the molten iron goes into the finished product and less labor and less floor space are required. These and other factors favor the casting of automotive brake drums by the centrifugal process.

The cupola-melted iron is run into a mixing ladle or forehearth. The transfer ladle that takes the iron to the casting machine is of the insulated type with cover and teapot spout. Alloy and graphitizer additions are made as the iron is poured into the transfer ladle. The pouring ladle is filled from the transfer ladle and pouring is accomplished by swinging the ladle into position and rotating it at a uniform rate.

After solidification, the casting is automatically ejected, the weight checked and the ladle adjusted, if necessary. When the casting has cooled it is ground by two wheels simultaneously. A large wheel grinds a chamfer on the inside diameter to facilitate machining and a small wheel takes off the sharp corners on the outside of the flange.

The operations performed are, in order: (1) Inserting web plate and locking in position; (2) pouring iron into the rotating mold; (3) mold spins as iron sets; (4) casting is ejected from the mold; (5) the casting is weighed; (6) the ladle is cleaned and sprayed with graphite and water; and (7) the mold is sprayed with a clay mixture. Automatic pouring is under consideration. The main item in mechanical maintenance is replacing the molds and cover plates.

To secure the greatest strength and the most wear-resistant properties in the high-carbon high-silicon iron base, ladle additions of copper or nickel with the usual graphitizer to the extent of 0.15-0.25 per cent Ni or 0.20-0.30 per cent Cu and about 0.25-0.35 per cent Cr are made. Break-drum mold failures studied led to the development of an alloy which when cast centrifugally, possessed a very high mechanical strength, and did not change its shape on repeated heating and cooling. This alloy was produced by adding 0.75 per cent Cr. plus a graphitizing agent, to malleable iron.

Metallurgical Terms

Sorbite

A.P.I. Code No. 28 defines sorbite as "a late stage in the tempering of martensite, when the carbide particles have grown so that the structure has a distinctly granular appearance. Further and higher tempering causes globular carbides to appear clearly." Sorbite, or a sorbitic structure, is the desired micro-constituent in the better grades of railroad rails, high-stress structural shapes or machine members, sucker rods, tubing, etc., because of its excellent combination of strength and ductility.

Intergranular Failure of Still Tubes

An interesting disclosure of the mechanism of tube failure was discussed on Page 123 of Metals and Alloys, April 1940. Dr. R. W. Moore of the Socony-Vacuum Oil Co. reports the failure of low carbon (0.5 molybdenum) steel pipe-still tubes by intercrystalline rupture as shown in Figs. 1 and 2 on this page. Operating conditions were as follows:

Life	40 months
Temperature of oil	880° F.
Temperature of metal (estimate)	910° F.
Temperature of furnace	1,355° F.
Oil pressure	725 lb. per sq. in.

The metal of the failed tubes had the following physical characteristics:

Ultimate strength	47,950 lb. per sq. in.
Yield point	29,350 lb. per sq. in.
Elongation in 2 in.	43 per cent
Rockwell "B" hardness	58 per cent

Fig. 2 indicates clearly that intercrystalline cracking occurred.

E. C. Wright of the National Tube Co. comments that "The information . . . is very significant as this is our first experience with a low-carbon steel tube which has ruptured in an intergranular manner." The steel appeared to be almost completely decarburized—perhaps by the action of hydrogen in the cracking still gases.

Failure may occure in two general ways—failure around the edge of the grains of metal (intercrystalline or intergranular) and failure by slip along crystalline planes within the grains (transcrystalline). Intergranular failure can be attacked by metallurgists because it is due to conditions at the grain boundary. Brittle material impurities, etc., may be present at the grain boundary or may accumulate at the grain boundary during service. Thus, a knowledge of the type of failure is an important step in curing the unsatisfactory situation.

Strong Sling Chains

Until recently the only types of chain materials that were much used in manufacturing chain links were wrought iron and mild steel but more and more is heard of alloy steel, etc., for this purpose. The strength of alloy materials is definitely evident in the following tabulation:

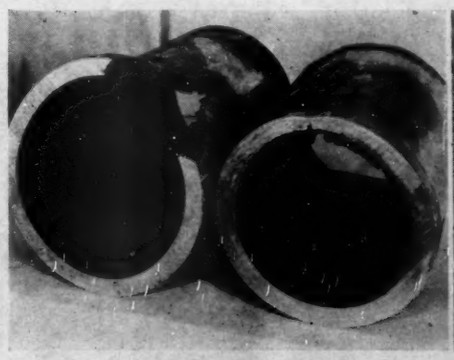
	Tensile strength (p.s.i.)
Wrought iron (double refined)	62,000
Mild steel	67,000
Nickel steel (S.A.E. 2325)	125,000
Nickel moly steel (S.A.E. 4620)	142,000

In addition to plain strength, the alloy steel chains have a greater resistance to shock, particularly at low temperatures such as those sometimes encountered in outdoor work. Wrought-iron chains require frequent annealing if brittleness by grain growth is to be avoided—the nickel alloy chains do not require annealing. The somewhat larger difference between the yield point and the ultimate strength of the alloy steels is also an advantage because the operator can see the links deform before the ultimate breaking strength is applied to the chain.

The S. G. Taylor Chain Co. of Hammond, Ind., manufacturer of nickel molybdenum chain, and the American Chain & Cable Co. of York, Pa., produce a plain nickel steel chain. Monel metal, stainless steel and copper-nickel steel chains are available for severe conditions of corrosion.

Flame-Hardened Rotary Pinion

Nickel-molybdenum steel (S.A.E. 4640) has been used for some time for the pinions of rotary machines but the utilization of flame hardening is an innovation. Emsco Derrick & Equipment Co. of Los Angeles now hardens rotary pinions (S.A.E. 4640) by a flame-hardening machine. The normal hardness of such a material is about 60 Brinell but with flame hardening the core material can have the low hardness of 235-255 Brinell while maintaining a hardness at the surface of the teeth of 480 to 555 Brinell. This is a happy combination of properties because the teeth can better withstand wear and at the same time the toughness of the core or main body material is great enough to withstand such shock loads as those encountered when the threads of large-size pumps must be broken loose.



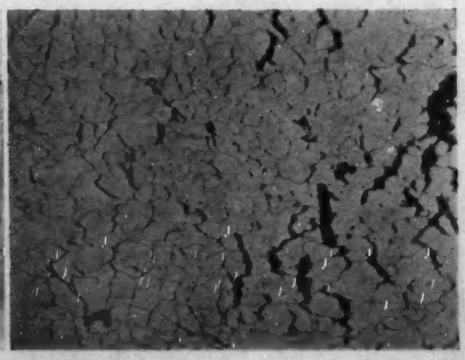
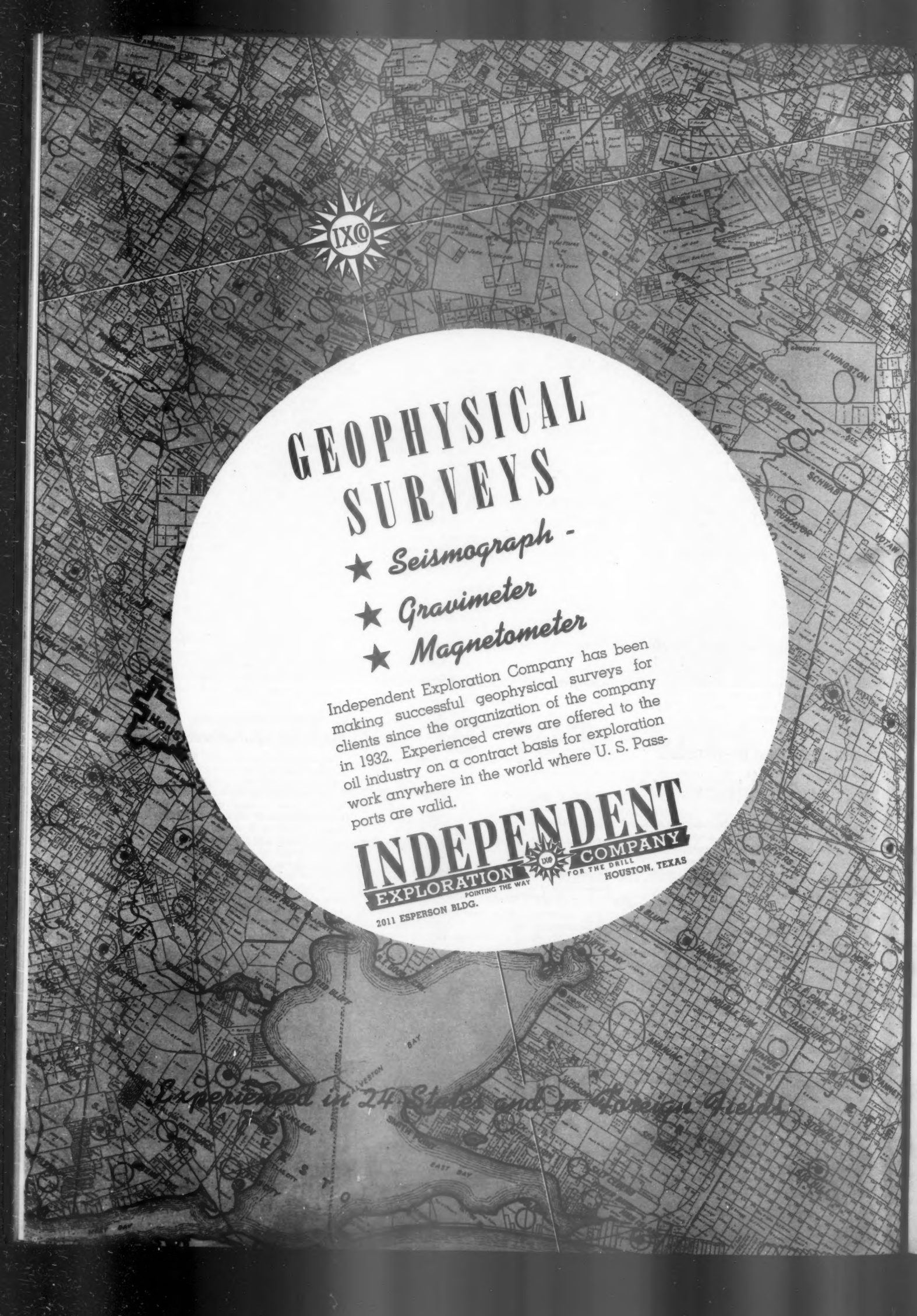


Fig. 1 (left)—Pipe-still tubes after 40 months' service. Fig. 2 (right)—Magnified section of the ruptured still tubes showing clearly that intercrystalline cracking occurred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FIELD OPERATIONS

Summarizing the Week's Developments

OKLAHOMA—A Cromwell sand pool was discovered in southwestern Okfuskee County, east of the Cromwell field. A Payne County wildcat found oil in Hunton lime, but passed it up to drill on to Wilcox sand. A wildcat in Washita County drilled about 4,000 ft. of granite wash and was shut down at 8,000 ft.

KANSAS—A Dickinson County wildcat had oil showing in chat and gave promise of opening the first pool in that county. The Geuda Springs pool, Cowley County, was extended ¼ mile westward. A large gas well was near completion in the new McLouth pool, Jefferson County, and a wildcat in Rooks County had oil showing in Arbuckle lime.

CALIFORNIA—At a time when California is trying to restrict drilling and production, a town-lot campaign looms in the Athens district of Rosecrans where Thorley Oil Co. has cored a new deep pay.

SOUTHWEST TEXAS—Nueces County promises some excitement in the near future as oil is discovered in the Stratton gas field, a town-lot play hangs fire while the Robstown prospect is being tested, and four wildcats are headed for various pays.

NORTH CENTRAL TEXAS—During July there have been more fields discovered in North Texas than during the preceding 6 months. Last week there were two discoveries, one in Montague and one in Young County.

ILLINOIS—With the Devonian pay pretty completely drilled at Centralia, the cream seems to be off. Production from that field has dropped nearly 50,000 bbl. during the past 4 weeks as Illinois' production has dropped from 518,224 bbl. to 464,116 bbl. per day.

PERMIAN BASIN—New efforts to extend the already large Wasson field of Yoakum County in the northern part of the Texas portion of the Permian basin, further to the northeast were under way at the close of the week. A new wildcat has been staked and another is being deepened. The Southeast New Mexico portion of the Permian basin was led in activity by the discovery of a new oil-producing area on the north edge of Lake McMillan in central Eddy County.

EASTERN TEXAS—The starting of a new drilling program for the 8,000-ft. gas area at Opelika in Henderson County led the news of the week in eastern Texas. After one partnership of companies spent more than $1,000,000 and developed only two small gas and distillate wells and an oil producer, another partnership has taken over the former's property and has started two tests.

MICHIGAN—With refinery runs about 23,000 bbl. daily above the state's production, Michigan needs new fields and needs them badly. Wildcatters are trying but so far this year there have been no discoveries to make up for declines.

LOUISIANA GULF COAST—A couple of 10,000-ft. wells were opened up last week as production was found at White Lake, Vermilion Parish, and Chenier, Cameron Parish.

Completions in All Fields

(Week Ended July 20, 1940)

	Oil	Gas	Dry	Total	1940 total comp. to date	1939 total comp. to date
N. Y., Pa., and W. Va.	63	13	4	80	2,194	1,727
Ohio	17	11	8	36	643	539
Indiana	5	0	3	8	208	131
Kentucky	5	6	5	16	275	355
Illinois	47	0	24	71	2,080	1,923
Michigan	6	1	13	20	703	749
Kansas	35	4	7	46	1,038	677
Oklahoma	15	7	12	34	1,052	1,039
Texas:						
North Central Texas	33	1	10	44	1,729	1,354
West Texas	17	0	2	19	1,202	1,041
Texas Panhandle	16	0	6	22	343	225
East Texas	4	0	0	4	145	275
East Central Texas	1	2	2	5	143	144
East Texas Border	3	1	1	5	44	43
Gulf Coast Texas	12	0	2	14	719	759
Southwest Texas	23	0	13	36	1,230	1,302
Total Texas	109	4	36	149	5,553	5,143
North Louisiana	4	1	1	6	335	286
Gulf Coast Louisiana	11	0	3	14	538	331
Total Louisiana	15	1	4	20	873	617
Arkansas	2	0	3	5	113	140
Montana	3	0	0	3	103	80
Wyoming	4	0	1	5	85	55
Colorado	0	0	0	0	12	7
New Mexico	4	0	1	5	372	337
California	14	1	4	19	595	506
Total United States	344	48	125	517	15,899	14,025
Total previous week	404	35	147	586		
Week ended July 22, 1939	349	40	142	531		

Outstanding Fields—Highlights

(Week Ended July 20, 1940)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
E.M.A.	11	38	5	3,667	1,417	29,749
Hull-Silk	18	48	5	5,887	312	8,529
Wasson	18	49	5	4,578	318	29,135
Ector County	7	18	6	4,741	889	36,662
Jones County	5	16	0	0	638	6,208
East Texas	9	13	6	208	26,006	374,895
OKLAHOMA						
Oklahoma City	0	10	1	236	856	101,150
Cement	2	11	6	2,463	319	7,150
KANSAS						
Bornholdt	2	20	?	850	90	1,570
Burnett	2	10	2	418	106	6,585
Silica	1	10	1	350	535	13,110
Trapp	3	12	1	72	558	15,125
NEW MEXICO						
Lea County	7	48	0	0	592	16,450
Eddy County	13	35	4	556	2,508	88,810
LA-ARK-TEX						
Cotton Valley, La. (deep)	0	9	0	0	18	13,000
Olla, La.	0	3	0	0	162	2,160
MICHIGAN						
Allegan County	4	23	1	30	503	7,723
Kent County	3	13	0	0	328	11,914
CALIFORNIA						
Montebello	0	11	1	525	348	19,350
ILLINOIS						
Salem	26	76	9	5,271	2,173	220,429
Centralia	1	23	2	2,289	*752	75,947
Louden	8	35	8	1,103	1,557	76,632
Other basin fields	59	242	28	4,947	2,280	81,205
Old fields	....	.....	....	.....	.....	9,883
MISSISSIPPI						
Tinsley	1	4	2	815	84	7,100

*Corrected.

Illinois Operations

By STAFF CORRESPONDENT

Completions and Production Both Show Large Drop

MATTOON, Ill., July 22.—An unusually large number of dry holes marred the week's record in Illinois with 24 of the 73 completed tests being failures; in addition there were two locations abandoned, one salt-water-disposal well and four gas-input wells. Total initial of the successful completions was likewise down, being only 13,630 bbl. for the 47 wells, a decrease of 43,246 bbl. in initials and 35 wells in the totail oil-completion column.

Marion County led in oil completions with 10 new wells, Clinton County was second with nine wells, followed by Fayette County with eight, White County with seven, Wayne County with five, Wabash County with four and Richland County with two new wells. Jasper, St. Clair, Washington and Gallatin counties each had one new producing well. Marion and Wabash counties each had four dry holes, Fayette and Clinton each had three dry holes and De Witt, Coles, Clark, Bond, Effingham, Washington, Jefferson, Monroe, White, Alexander and Henry counties each registered a failure.

Production of the state declined along with completions, 464,116 bbl. being the daily average production for the week. Most of the drop was in the Centralia field where a decline in the Devonian lime production was only partially offset by two completions totaling 2,914 bbl. initial. There were no discoveries of new fields although several important wells were nearing the completion stage.

Bond County Completions

Robert Smith, 1 Desborough . . NW NE SW 26-7n-4w
Sand 575-80 ft., T.D. 605 ft., dry.
Swan-King, 1 Brown . . . . . NW SE SW 22-6n-2w
Devonian 2,345 ft., T.D. 2,458 ft., dry, slight show of oil in Devonian.

Wildcats

Dickerson et al . . . . . SE NE NE 16-5n-2w
Chattanooga 2,405 ft., Devonian 2,435 ft.
National Petroleum, 1 Spindler NW NW NW 10-6n-2w
Shot 5 qt. 2,305-11 ft., filled up 2,250 ft., 175 ft. oil, plugged back 2,304 ft.
Poland et al 1 Morrow . . . . . SW SE SE 7-5n-1w
Cored 1,325 ft., ran 3½ in. casing 1,264 ft.
Tom Smith et al, 1 Duncan E½ NE SE 8-6n-2w
Devonian test, shut down 165 ft.
W. F. Lacey, 1 Cartwell . . . . . NE NW SE 29-5n-2w
Rotary drilling 735 ft.
W. H. Dickerson et al 1 Wise . C W½ NE 19-4n-2w
Rigging up rotary to test Devonian.

Effingham County Completion

Kingwood, 1 Martin . . . . . E½ NE SW 14-6n-5e
St. Louis 2,586 ft., T.D. 2,674 ft., dry.

Wildcats

Turner, 1 Pruett . . . . . SE SW NW 7-5n-3e
Drilling 210 ft.
Kingwood, 1 Wolfe . . . . . SW SW SE 14-5n-7e
Building derrick.

De Witt County Completion

Waharp O. & G. Dev., 1 Short . . . . SE NE SW 6-20n-3e
Keokuk 1,425 ft., dry.

Coles County Completion

Carter, 1 Ohm . . . . . E½ NE NE 10-11n-7e
Ste. Genevieve 1,978 ft., St. Louis 2,050 ft., T.D. 2,123 ft., dry.
Tex Harvey, 1 P. Erwin . . . . . SW SW SW 36-13n-9e
Rigging up cable tools.

Clark County

Tex Harvey, 1 Tyhurst . . . . . NW SW SE 26-9n-14w
Devonian 1,922 ft., T.D. 2,029 ft., dry.

Wildcats

H. K. Snavely, 1 Schofield . . . . . SE NE SE 9-11-11w
Drilling 3,025 ft.
Harr & Hawley, 1 Pinnell . . SE NW SE 6-11-14w
T.D. 2,540 ft., P.B. 2,460 ft., shot 250 lb. at 2,450 ft., cleaning out.
Harvey, 1 Phillips . . . . . NW NE NE 18-11-14w
Drilling 1,330 ft.
General Pet., 1 Ingersoll . . . . . NE NW NE 32-11n-14w
Drilling 600 ft.
Strickler, 1 McFarland . . . . . NW NE SW 19-10n-13w
T.D. 2,833 ft., P.B. 2,784 ft., shot 80 qt., cleaning out.

Monroe County Completion

Cummings, 2 Boyer . . . . . SE SW SE 19-1s-10w
Drilling 2,195 ft.
Doc Rose, 1 Rose . . . . . W½ W½ W½ 15-1s-30w
Drilling deeper from 860 ft. with cable tools.
Hughes Pet., 1 Meyer . . . . . NE SW SE 28-2s-10w
Ordovician 745 ft., Brunswick 855 ft., T.D. 1,575 ft., dry.

Fayette County Completions

Louden Pool

Carter, 1 Phillips-Wood . . . . . NW SW SW 36-9n-3e
Cypress 1,529-56 ft., shot 50 qt., pumped 132 bbl. oil and 4 bbl. water.
Carter, 1-5 E. Huffman . . . . . NE NE NE SE 2-8n-3e
T.D. 1,605 ft., gas input well in Cypress and Paint Creek.
Carter, 2-6 Sinclair . . . . . NW NW NW SE 2-8n-3e
T.D. 1,600 ft., gas input well in Cypress and Paint Creek.
Carter, 1 Durbin-Hopper . . . . . NW SW SE 23-8n-3e
Cypress 1,544-99 ft., shot 10 qt., dry.
Carter, 2 Tucker . . . . . SE NE NW 27-8n-3e
Cypress 1,512-25 ft., Paint Creek 1,547-56 ft., Bethel 1,585-87 ft., shot 40, 10, and 10 qt., pumped 318 bbl.
Carter, 23 Durbin . . . . . SW NE NE 8-7n-3e
Cypress 1,475-1,515 ft., Paint Creek 1,545-78 ft., shot 10 qt., pumped 72 bbl.
Carter, 4 Mabel Durbin . . . . . NE SW NE 8-7n-3e
Cypress 1,428-77 ft., Paint Creek 1,511-31 ft., acid 1,000 gal., shot 10 and 40 qt., pumped 552 bbl.
Carter, 5 Hawkins . . . . . NE SE SW 17-7n-3e
Cypress 1,503-34 ft., Paint Creek 1,566-80 ft., shot 40 qt., pumped 120 bbl.
Babcock, 6 J. L. Rhodes . . . . . SW SE SE 27-8n-3e
Bethel 1,603-14 ft., shot 63 qt., pumped 26 bbl. oil and 32 bbl. water.
Whisenant and others, 21 Lilly . . SW NW SE 16-8n-3e
Paint Creek 1,548-78 ft., shot 20 qt., pumped and flowed 195 bbl.
Blalock & Walters, 1 Harding . . . NE SE NW 18-7n-3e
T.D. 1,504 ft., dry.

St. James Pool

Texas, 1 Griffith . . . . . NW NW SE 25-6n-2e
Cypress 1,598-1,609 ft., shot 20 qt., pumped 30 bbl.
Texas, 7 Neathery . . . . . SE NW NW 6-6n-3e
Cypress 1,525-44 ft., shot 10 qt., pumped 184 bbl.

Marion County Completions

A. E. Stewart, 1 Whittenburg . . . . E½ NE SW 31-4n-4e
McClosky 2,387 ft., T.D. 2,481 ft., dry.
Southwestern Oil & Gas, 26 Benoist SW SE NE 8-2n-1e
Devonian 2,930 ft., pay 2,972-75 ft., acid 100 gal., flowed 420 bbl., 11 hours.

Salem Pool

Ohio, 1 Young . . . . . SW NE SE 17-2n-2e
Tar Springs 1,125 ft., T.D. 1,241 ft., salt water disposal well.
Ohio, 5 M. Young . . . . . NW NW SW 20-2n-2e
McClosky pay in two streaks 2,072-80 ft., T.D. 2,108 ft., acid 2,000 gal., pumped 47 bbl.
Ohio, 35 C. E. Loyd . . . . . NW NW NE 33-2n-2e
Devonian pay 3,460-72 ft., acid 3,000 gal., flowed 1,357 bbl. in 16½ hours.
Ohio, 16 C. E. Loyd . . . . . SW NW NE 33-2n-2e
Devonian pay 3,481-98 ft., acid 3,000 gal., flowed 1,269 bbl.
Ohio, 36 C. E. Loyd . . . . . SW NW SE 33-2n-2e
Devonian pay 3,481-90 ft., acid 3,000 gal., flowed 1,269 bbl.
Texas, 11 W. Martin . . . . . S½ SW SE 17-2n-2e
McClosky pay in three streaks, 2,000-65 ft., acid 3,000 gal., pumped 98 bbl.

(Continued on Page 184)

Gibson County Indiana Has Thirty Active Operations

By STAFF CORRESPONDENT

EVANSVILLE, Ind., July 22.—There were only eight completions in Indiana during the past week and three of them were dry holes, two in Spencer County, and one in Posey County. Four of the oil wells were in Gibson County and one was in Spencer County. Total initial of the oil wells was 793 bbl. New operations were double the completions, 16 first reports being recorded.

Most of the new work was in Gibson County where six new tests were scheduled; Posey County had three starts. Vigo, Hendricks, Hamilton, Newton, and Vanderburgh counties each got one new test and Spencer County got two.

Most of the drilling activity was in Gibson County where 22 wells were at work and 8 more were preparing to drill. Posey County had 7 drilling wells and 2 locations, and Spencer County had 10 drilling wells and 1 location. The rest of the work was scattered although Daviess County had five tests drilling. Ten of the tests in Gibson County were nearing the completion stage. Activity in Spencer County was centered in 6 and 7s-7w and most of the work in Posey County was in and around 34-3s-14w.

Two Devonian tests were active in the state with one of them giving indications that it may make some kind of a producer. It was the Newton Pipe Line Co. No. 1 John W. Connelly, in 32-2n-6w, which encountered a 500,000-cu. ft. gas show, and was drilling ahead.

Gibson County New Operations

S. M. Kernon . . . . . E½ NW SE 12-3s-9w
Pay 1,697-98 ft., bailing some oil and sulfur water.
Apex Drilling, 1 Skiles . . . . . SW NW NE 18-3s-13w
Old T.D. 2,570 ft., P.B. 1,848 ft., P.B. 1,833 ft., W.O.C.
W. F. Lacey, 6 Cooper . . . . . SW SW SW 18-3s-13w
Waltersburg 2,061-81 ft., set pipe.
Brown et al, 1 Sullivan . . SE NW SW 20-3s-13w
McClosky 2,802-04 ft., T.D. 2,906 ft., S.D.O.

Gibson County Drilling

Bander et al, 35 Cooper . . . . . SE NE NE 24-3s-14w
Waltersburg 2,071 ft., drig. 2,076 ft.
Hollandsworth Bros., 5 Cooper NW SE NE 24-3s-14w
Cypress 2,519-43 ft., shot 80 qt., cleaning out.
Hall-Edwards, 4 Maier . . . . . NE NE SE 14-3s-14w
Cypress 2,479 ft., coring at 2,479 ft.
Papoose, 7 Cooper A . . . . . NE SW SW 13-3s-14w
Cypress 2,475-96 ft., swabbed 30 bbl./2hrs., to shoot.
Lewis Prod., 10 Cooper D . . . SE SE NE 13-3s-14w
Cypress 2,471-91 ft., set pipe.
Joe Bander et al, 7 Cooper . . . . SW NW NE 13-3s-14w
Waltersburg 2,127-45 ft., show oil, Cypress 2,475-78 ft., set pipe 2,476 ft., removable section opposite Waltersburg.
Continental, 1 Klerderer . . . . NE NE NE 33-3s-14w
Menard 2,125 ft., S.O. 2,197-2,202 ft., drig. 2,387 ft.
Harry Sandler, 2 Keck . . . . . NE SW NW 34-3s-14w
Aux Vases 2,789 ft., casing 2,789 ft., T.D. 2,811 ft., to shoot.
Harry Sander, 3 Keck . . . . . NE SW NW 34-3s-14w
Aux Vases pay 2,787-91 ft., set casing.
Superior, 27 New Harmony . . SW NW SE 8-5s-14w
T.D. 2,978 ft., pumped 20 bbl. of oil.
La Salle Drilling, 1 Peoples Saving Bank . . . . . SE NW SE 26-7s-15w
Aux Vases 2,765 ft., T.D. 2,900 ft., may run casing.
Creager Lewis et al, 1 Dietz . . . NE NW SE 1-7s-12w
T.D. 1,793 ft.; liner 1,763-93 ft., installing pump.
O. F. Kelly, 2 Hahn . . . . . NE NW SE 1-7s-12w
Drilled by to 1,784 ft., T.D. 1,896 ft.

Gibson County Completions

Joe Bander et al, 6 Cooper . SW NW NE 13-3s-14w
Pay 2,485-96 ft., 30-qt. shot, pumped 100 bbl.
Lewis Prod., 4 Cooper A . . . . . NE NE SE 13-3s-14w
Pay 2,509-15 ft., 20-qt. shot, pumped 120 bbl.
J. C. Meyer et al, 1 Fifer . . . . SW SE SE 13-3s-14w
Pay 2,491-2,513 ft., 25-qt. shot, pumped 93 bbl.
Hall Edwards, 3-A Maier . . . . SW NE SE 14-3s-14w
Cypress 2,474-97 ft., flowed 450 bbl., naturally.

Posey County Completions

O. F. Kelley et al 3 Hahn . . . . SW SW NW 1-7s-12w
Menard 1,704 ft., S.S.O. 1,886-94 ft., abandoned.
Brown-Ryan et al, 1 Spencer . . . . E½ SE SE 26-7s-15w
2,882 ft., hole trouble, dry.

Daviess County Drilling

Newton P. L. Co., 1 Brittain . NE NE SW 15-1n-5w
Glen Dean 401 ft., Golconda 501 ft., drilling 1,045 ft.
Newton P. L. Co., 1 Conelly . . . . SE SE NE 33-2n-6w
Devonian 2,180 ft., 500,000 cu. ft. gas 2,186-94 ft., rock pressure 890 lb., drilling 2,212 ft.

FIRST REPORTS

Vigo County: H. N. Oakley, 1 Summerton, SW SE SE 19-13n-8w, Ste. Genevieve 651 ft., water 745-55 ft., drilling 830 ft.
Hendricks County: Griffin Oil, 1 Hobbs, SW NE SE 17-15n-2e, location for St. Peter test expected at 2,000 ft.
Hamilton County: O. H. Hammer, 1 Nelson, NE SW SW 13-19n-3e, spudded.
Newton County: A. C. Thomas, 1 Foresman, NW NW SW 3-31n-8w, location.
Vaughn & Smith, 1 Radian-Yacup, SW SE SE 33-32n-8w, T.D. 880 ft., pumped 24 bbl. in 6 hours, shut down for orders.
Spencer County: Damron, 1 Boyd, SW SE SE 30-7s-6w. T.D. 955 ft., pumped 30 bbl.

Damron, 1 Scamahorn, NW SW SE 20-7s-6w, T.D. 930 ft., dry.
L. L. Benoist, 2 Crowder, NW SW NW 7-7s-7w, T.D. 1,285 ft., dry.
Pike County: George W. Miller, 1 Nixon, SE SW NE 14-3s-8w, drilling below 4,425 ft.
Sullivan County: Scott et al, Mattox, SW NE NE 29-8n-9w, Ste. Genevieve 1,188 ft., drilling 1,195 ft.
Harrison County: Indiana Public Utilities, 1 Kopp, NE NE NW 5-4s-4e, Salem 275 ft., S.D. 540 ft.

EASTERN KENTUCKY

ASHLAND, Ky., July 22.—The completion of a good oil well and six gas wells held the spotlight in eastern Kentucky the past week. A month-end report has made available additional data including the listing of two dry holes and several new locations.

Floyd Fitch et al, 1 Leonard Holbrook, in Morgan County, estimated to be producing 3,250,000 cu. ft. of gas in Maxon sand at 750 ft.

Virginian Gas & Oil, V-1287, 60 bbl. at 1,463 ft. in Maxon sand. The well is on the Virginia Halbert land on Little Crooked Branch in Martin County.

Columbian Fuel, 838, on the Tierney Land Co. tract on Stratton Fork in Pike County, 90,000 cu. ft. of gas per day at 3,561 ft. in brown shale.

Floyd Fitch, 1 Smith heir, on Birch Fork in Morgan County, 500,000 cu. ft. of gas daily at a total depth of 700 ft., in Maxon.

Owens, Libby-Owens have an estimated 50,000 cu. ft. daily production of gas in No. 1 J. H. Wilson, on Grassy Creek in Morgan County, at 1,300 ft., in Corniferous. The well was acidized with no further increase.

J. T. Diederich, 7 Amey Stepp Pauley, Crooked Creek in Martin County, at 1,598 ft. in Maxon, has a daily gas production of 15,000 cu. ft.

Fitch and McGowan hit a dry hole in No. 1 A. C. Bradley, on Birch Fork, in Morgan County, at 701 ft.

James I. Hollon (Lorbach) hit a dry hole at 3,800 ft. in No. 2 D. H. Rose, on Red River in Wolfe County.

Kentucky-West Virginia Gas, 592, on the John Wickler land, on Jones Fork of Right Beaver, in Knott County, at a total depth of 2,787 ft., is producing 906,000 cu. ft. of gas in shale under rock pressure of 365 lb. for 48 hours.

WESTERN KENTUCKY

OWENSBORO, Ky., July 22.—Four oil wells and three dry holes were completed in western Kentucky during the past week.

Butler County

Silver City district: Billy Phillips, 6 Martha Hawes, 10 bbl., Jones sand 497-526 ft.

Caldwell County

Liberty School district: John Whootan et al, 1 William Morse, dry hole through McClosky, T.D. 1,204 ft.

Daviess County

Utica district: Foursome Oil Co., 1 W. D. Igleheart, drilled deeper from Bethel at 1,465 ft., through McClosky 1,702-14 ft., 135 bbl. oil, 65 bbl. water, 24 hours.
Handyville district: Master Oil Co., 7 E. W. Richmond, 90 bbl., Jett sand 1,167-84 ft.

Henderson County

Hebbardsville district: Jim Matthews et al, 1 Lee Schaffer, dry hole through Bethel sand, T.D. 1,537 ft.

Ohio County

Taffy district: H. H. Vickers et al, 1 R. H. Baird, dry hole through Jett sand, T.D. 535 ft.
Fordsville district: Henry Scholl, 4 Ira Hale, 5 bbl., Barlow sand, T.D. 526 ft.

OHIO

Nineteen completions were reported in the Ohio fields covered in this report, 10 gas wells, 6 oil wells and 3 dry holes. Coshocton County yielded a 62-bbl. oil well. Two fair gas wells were completed in Muskingum County. Athens County has a shallow-sand gasser good for 1,800,000 cu. ft.

In Palmer Township, Washington County, 3 miles east of Watertown, Columbian Carbon, 1 J. C. Stollar, Section 32, topped the Corniferous lime at 3,833 ft., drilled in 14 ft. and shut down to cement casing. The Magnolia test in Mahoning County, Berlin Township, is drilling at 3,400 ft.

Ashland County, Mohican Township: Ohio Fuel Gas, 1 Jane Lisle, Section 35, Clinton dry, depth 2,996 ft.
Athens County, Carthage Township Ohio Fuel Gas, 2 W. A. Barnhill, Section 16, 1,850,000 cu. ft. of gas, Salt sand at 1,040 ft.
Coshocton County, Perry Township: Preston Oil, 6 E. R. Van Winkle, Section 15, 62 bbl. of oil first 24 hours after shot, Clinton at 3,066-3,118 ft.
Holmes County, Hardy Township: Lydic, 1 Albert Kohman, Section 16, is a small gas well in the Berea, depth 721 ft.
Washington Township: Ohio Fuel Gas, 1 F. E. Heffelinger, Section 18, 100,000 cu. ft., Clinton, depth 3,002 ft.

(Continued on Page 191)

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Illinois Fields

(Continued from Page 182)

Texas, 33 W. Friedrick A ..... SW SE NE 30-2n-2e
Devonian pay 3,465-3,511 ft., acid 3,000 gal., flowed 223 bbl. in 11 hours.
Texas, 22 Stroup ..... SW SE NW 31-2n-2e
Devonian pay 3,375-3,415 ft., 5,000 gal. acid, flowed 817 bbl.
Texas, 21 T. Easley ..... NE SE NW 33-2n-2e
Devonian pay 3,488-3,514 ft., acid 5,000 gal., flowed 579 bbl.
Texas, 8 F. Lazaretti ..... SE SW SW 33-2n-2e
Aux Vases 1,849 ft., shot 55 qt., flowed 345 bbl.
Texas, 1 Heydeick ..... NW SE SW 4-1n-2e
Benoist 1,834-73 ft., T.D. 1,878 ft., shot 20 qt., gas input well.
Texas, 58 City of Centralia ..... NW SW NE 5-1n-2e
Devonian pay 3,367-96 ft., acid 5,000 gal., flowed 536 bbl.
Texas, 15 Hawthorne ..... NE SW NE 8-1n-2e
Benoist 1,826 ft., Aux Vases 1,870-1,902 ft., shot 10 and 15 qt., gas input well.
Magnolia, 1 McIntosh ..... SE NE NE 19-2n-2e
Devonian 3,490 ft., T.D. 3,555 ft., dry.
Craft, 1 Conner ..... SE SW NW 30-2n-2e
Devonian 3,528 ft., T.D. 3,628 ft., dry.
Scott, 3 S. Wooten ..... SE SE NW 20-2n-2e
Devonian 3,462 ft., T.D. 3,538 ft., acid 1,000 gal., tested dry.

In the Salem pool Texas Co. reported the following wells deepened or plugged back:

Texas, 1 M. Williams ..... E½ SE SE 3-2n-2e
Deepened from 1,690 ft. to 1,775 ft., Aux Vases 1,705 ft., flowed 600 bbl.
Texas, 4 E. Hays ..... SE SW SE 33-2n-2e
Plugged back from 1,907 ft. to 1,894 ft., shot 15 qt., pumped and flowed 339 bbl.
Texas, 2 Easley ..... SW SW NE 33-2n-2e
Deepened from 1,890 ft. to 1,910 ft., Aux Vases 1,892 ft., shot 90 qt., pumped 55 bbl. in 6 hours.
Texas, 2 M. Williams ..... W½ SW SW 32-2n-2e
Deepened from 1,687 ft. to 1,775 ft., Aux Vases 1,705 ft., pumped 125 bbl. in 21 hours.
Texas, 4 S. Shereshoveck ..... SE SW NW 33-2n-2e
Deepened from 1,834 ft. to 1,892 ft., Aux Vases 1,860 ft., shot 75 qt., pumped 45 bbl. in 6 hours.
Texas, 5 W. Martin ..... NE SE SE 17-2n-2e
Deepened from 1,851 ft. to 1,884 ft., Aux Vases 1,840-84 ft., shot 45 qt., pumped 75 bbl.
Texas, 3 E. Farthing ..... SE NW SE 32-2n-2e
Deepened from 1,796 to 1,865 ft., Aux Vases 1,805 ft., shot 105 qt., flowed 120 bbl.
Texas, 3 E. Jett ..... NE SW SW 16-2n-2e
Deepened from 1,866 to 1,887 ft., shot 50 qt., Aux Vases 1,830-80 ft., pumped 24 bbl. in 6 hours.

Richland County

Pure, 1 Hernicle ..... W½ NW SW 32-5n-10e
Cypress 2,460 ft. with saturation 2,538-58 ft., Fredonia 2,833 ft., pay 2,839-46 ft., acid 5,000 gal., flowed 249 bbl.
Pure, 3 Bauman ..... W½ NE NE 12-4n-9e
Fredonia 2,922 ft., pay 2,925-28 ft. and 2,930-34 ft., acid 5,000 gal., pumped 23 bbl.
Pure, 2 Bauman ..... W½ NE SE 12-4n-9e
Fredonia 2,918 ft., pay 7 ft. in two streaks 2,920-31 ft., acid 5,000 gal., flowed 366 bbl.

Clinton County Completions

W. S. Tatum, 1 Schrage ..... NE NE SW 17-3n-4w
St. Peter 3,516 ft., T.D. 3,550 ft., dry. (Note: St. Peter contained almost fresh water (24 parts salt p.m.)
M. C. Trumbell et al, 1 Ackman.... SE SE SE 22-2n-3w
T.D. 2,730 ft., dry.
M. C. Trumbell, 1 Peters ..... SW SE SE 33-2n-4w
T.D. 3,305 ft., dry.

Hoffman Pool

Blalock Drilling, 1 Brameier .... SW NE SW 2-1n-2w
T.D. 1,328 ft., shot 3 qt., pumped 65 bbl. fluid, 40 per cent water.
Dick Duncan, 1 Knolhoff ..... SE NW NW 11-1n-2w
Benoist 1,320-24 ft., T.D. 1,327 ft., shot 3 qt., pumped 118 bbl. in 16 hours.
Martin Jacobsen, 1 Knolhoff ... NE SE NW 11-1n-2w
Benoist 1,317-26 ft., shot 3 qt., pumped 85 bbl. oil.
Max Pray, 1 M. Knolhoff ..... NW SE NW 11-1n-2w
Benoist 1,316 ft., T.D. 1,325½ ft., shot 3 qt., pumped 90 bbl.

Bartelso Field

Santa Fe, 1 B. Maddox ..... NW SE SW 4-1n-3w
Devonian pay 2,408 ft., T.D. 2,420 ft., acid 3,000 gal., flowed 126 bbl., 9 hours.
Oil Producers, 2 Geo. Vandeloo ... SW NE NE 8-1n-3w
Devonian 2,472 ft., T.D. 2,509 ft., acid 3,000 gal., pumped 28 bbl. oil.
Paul Mosebach, 1 Kampwerth ... NW NE NW 9-1n-3w
Devonian pay 2,417 ft., T.D. 2,413 ft., 3,000 gal. acid, pumped 113 bbl.

Centralia Completions

Gulf, 2 Ellerman-Buehler .....E½ SE SW 36-2n-1w
T.D. 2,923 ft., 389 bbl. oil and 3 bbl. water.
Gulf, 3 Adams-Schmide ..... E½ NW SE 2-1n-1w
T.D. 2,905 ft., 1,900 bbl. oil and 255 bbl. water.

Wildcats

H. F. Williams, 1 Bach ..... NW NW NW 21-1n-1w
Osage 2,080 ft.
Bert Fields, 1 Zachary ..... SW SW NE 1-1n-3w
Benoist 1,156 ft., drilling 2,110 ft.
Matches, 1 Nettemeyer ..... SE SW 1-1n-3w
Sand 982 ft., water 1,021 ft., drilling 1,030 ft.
Snell & Goldsmith, 1 Schaefer .. SW NE NW 33-2n-3w
Devonian 2,489 ft.
L. G. Miller, 1 Schmidt ..... E½ W½ SE 35-2n-5w
Underreaming 6 in. at 1,015 ft.
Gerson, 1 Hodapp ..... SE SE NE 27-2n-2w
Devonian 2,858 ft. (tight hole), drilling 3,001 ft.

Wayne County Completions

N. V. Duncan, 2 Skelton ..... W½ NE NE 32-2n-8e
McClosky 3,029-34 ft., T.D. 3,044 ft., flowed 372 bbl.
Pure, 2 Obrecht A ..... W½ SW NW 9-1n-8e
McClosky pay in three streaks 3,045-90 ft., acid 5,000 gal., flowed 182 bbl.
Roche & Voyles, 6 Carlson B .... SE SE SW 34-1s-7e
McClosky pay 3,222-30 ft., 3,246-56 ft., acid 4,000 gal., flowed 470 bbl.
Al Stengle, 2 Withrow Consol. . N½ SW NE 34-1s-7e
McClosky 3,268-76 ft., acid 4,500 gal., pumped 120 bbl. oil and 12 bbl. water.
Robinson, 1 Carson-Oakley ..... NW NE NE 34-2s-8e

(Continued on Page 186)

North Central, East Texas

By R. MARNE SANFORD

Montague and Young County Discoveries Add to Long List

WICHITA FALLS, Tex., July 22.—During the first 3 weeks of July there have been a greater number of new fields discovered in North Texas than during the entire first half of the year. Within the past 20 days there have been seven new fields opened in the northern tier of Texas counties. The two opened this week were in Montague and Young counties.

Indicating production last week and this week more strongly bidding for the southernmost discovery in the Fort Worth basin, Walter Gant, 1 Will Laird, just a mile north of the Wise County line and about 5 miles west of Fruitland in extreme southern Montague County, was last reported progressing slowly below 5,240 ft. Last week a 33-ft. section of saturation was drilled from 4,857 to 4,890 ft. A 40-minute drillstem test at this level netted 10 ft. of oil and 150 ft. of drilling mud with no water present. Operators were of the opinion that sufficient saturation had been drilled to make commercial production at that depth. Completion of this test for a producer would definitely bring deep drilling for the northern part of Wise County which experienced an extremely hot leasing play several months ago.

North Texas' second discovery of the week was in Young County and about 2½ miles east of the town of Graham. It is A. T. Strong, 1 Craig heirs, E. H. Ross Survey, Abstract 246, just east of shallow production. The well flowed at the rate of 30 to 35 bbl. daily as the week closed, production being from the Marble Falls lime at a total depth of 4,230 ft. Testing continued as the week closed.

Status of Discoveries

A digest of the discoveries and indicated discoveries of the past 3 weeks shows a much greater than normal per cent of hits in the North Texas district. Early in July Amerada Petroleum Corp. plugged back its No. 1 Goodpasture, deep wildcat in Wilbarger County, from a total depth of 6,717 ft. and completed it for an estimated 600 bbl. daily from saturation at 3,232-50 ft. Official gage has not been made as yet on the well. This well opened the second half year's first discovery.

During the same week the official gage was reported for a discovery well just east of Nocona in Montague County. It was Sinclair Prairie, 1 Benton, Jackson Survey, just east of the three-pay Rogers & Rogers field. The well gaged 119 bbl. daily from saturation drilled from 5,120-35 ft.

Last week new discoveries were indicated in Montague, Clay, Foard, and Jack counties. These indicated discoveries have, with the exception of one which is still testing, been completed as field openers. About 3 miles west and slightly north of the Worsham field in eastern Clay County and about 6 miles west and slightly south of the Seay field in Montague County, E. C. Norwood, 1 Hapgood, Block 61, Marion County School Lands, has been gaged at 2,095 bbl. daily through ¾-in. choke on tubing from pay drilled from 5,972-84 ft. This field is on the large 52,000-acre structural high outlined by geologists shortly following the discovery of the Seay field.

Foard County discovery, Thomason Oil & Royalties, 1 Gamble, Section 314, H.&T.C. Survey, 8 miles northeast of Crowell, reported a flow of 28 bbl. of oil in 3 hours from saturated Canyon lime drilled at 2,345-69 ft. The flow was made under casing pressures of 210 lb. and tubing pressures of 100 lb. An acid treatment is contemplated by the operator before taking official Railroad Commission gage.

Linking the Loving area of Jack County with the Bryson field, Gillespie, Harper, & Knappenberger, 1 Crum, McClenden Survey, about 1½ miles northwest of the east Bryson field and a like distance southeast of the lone producer drilled several years ago by Gillespie on the Loving lease, has not taken official completion gage but has reported several good flows during the week. Saturation was drilled in the Bryson sand from 3,131 to 3,144 ft.

From a survey of the completions in North Texas during the past 3 weeks it is seen that only seven deep failures have been listed. This, together with the seven deep discoveries, means that more than half of the deep wildcats completed during the past 3 weeks in North Texas have been field openers.

NORTH TEXAS AREA COMPLETIONS

(24-hour gages)

Archer County

Wildcat: L. T. Burns, 1 Turberville, dry at 4,939 ft.
Hull-Silk field: Chapman & McFarlin, 12 Wilson, 1,400 bbl., 3,825-65 ft.
Gulf, 19 Seigel, 1,020 bbl., 3,936-4,000 ft.
Helmerich & Payne, 13 Wilson, 895 bbl., 4,358-93 ft.
Helmerich & Payne, 6 Finley, 1,296 bbl., 4,325-61 ft.
Peterson & McCarty, 36 Wilson, dry at 4,402 ft.
Thurmond & Lipscomb, 7 Wilson, 676 bbl., 3,726-48 ft.

Clay County

Thorneberry field: Apache Oil, 3 Henderson, dry at 1,189 ft.
Gilchrist & Jackson, 3 Hamilton, junked at 257 ft.
Gilchrist & Jackson, 4 Hamilton, dry at 280 ft.
Hamilton, 1 Hamilton, dry at 2,650 ft.
Norwood, 5 Taylor, 10 bbl., 1,128-40 ft.
Sussex Oil, 6 Glasgow, dry at 218 ft.
Wildcat discovery: E. C. Norwood, 1 K. N. and L. P. Hapgood, 2,095 bbl., 5,972-84 ft.

Cooke County

Muenster field: Kingery Brothers, 10 Johnson, 20 bbl., 1,177-1,213 ft.
Walnut Bend: Magnolia, 7 Ramsey, 520 bbl., 4,712-54 ft.
Sinclair Prairie, 1 Hudspeth, 208 bbl., 4,961-99 ft.
Sun Oil, 5 Snuggs, 389 bbl., 4,885-4,905 ft.
Bulcher field: Seitz, Comegy & Seitz, 10 Poteet, 47 bbl., 1,146-1,390 ft.
Seitz, Comegy & Seitz, 11 Poteet, 10 bbl., 1,071-1,332 ft.

Jack County

Bryson field: Big Six Oil, 6 Smith, 50 bbl., 2,325-49 ft.
Dallas Royalty and Napoleonic Oil, 2 Epperson, 714 bbl., 3,223-38 ft.
Wildcat: Daves, 1 Baker, dry at 3,161 ft.

Montague County

Rogers & Rogers field: Conner, 1 Reed, 1,278 bbl., 4,315-34 ft.
Rogers & Rogers, 4 Astley, 1,944 bbl., 4,336-53 ft.
Wildcats: Sinclair Prairie, 1 Benton, 119 bbl., 5,120-35 ft.
Sinclair Prairie, 1 Milam, dry at 6,000 ft.

Wichita County

K.M.A. field: Bishop, 3 Waggoner, 568 bbl., 3,722-93 ft.
Blanco Oil, 5 Thom, 1,152 bbl., 3,750-3,842 ft.
Hammon, 2 Hammon, 645 bbl., 4,007-93 ft.
Merrick, 4 Jones, 602 bbl., 4,025-4,100 ft.
Merrick, 5 Jones, 700 bbl., 4,059-4,148 ft.
Electra field: Culbertson, 86 Waggoner, dry at 575 ft.
C. O. Davis, 5 Jones, 7 bbl., 604-610 ft.

Wilbarger County

South Vernon field: King Oil, 12 Waggoner, 10 bbl., 1,412-26 ft.

Young County

Markley field: Bohner & Watson, 11 Prideaux, 9 bbl., 506-535 ft.
Ranell Oil, 4 Jack, 14 bbl., 552-558 ft.
Newcastle field: Collins, 1 Hawkins, 10 bbl., 489-500 ft.
Collins, 1 Logan, abandoned location.
Collins, 2 Porter, abandoned location.
James field: Long, 1 King & Wootten, 40 bbl., 2,752-87 ft.
Long, 3 King & Wootten, 15 bbl., 2,754-90 ft.
Long, 1 Taylor, 300 bbl., 3,975-93 ft.
Southwest Graham field: Lupton & McLester, 6 Brown, 100 bbl., 3,720-55 ft.
Olney field: Smith, 1 Wolf, dry at 542 ft.

EASTERN TEXAS

DALLAS, Tex., July 22.—Another of eastern Texas' deep and comparatively little-explored areas received a drilling program during the past week. The area was the Opelika field of Henderson County. Lone Star Gas Co. and Shamrock Gas Co. staked locations for two deep 8,000-ft. wildcats, both of which will seek gas and distillate production from the deep Trinity stratum.

Several months ago the Tide Water Oil Co. and Seaboard Oil Corp. partnership turned all of its leases and its oil well and two gas wells to the Lone Star and Shamrock partnership. The Tide Water and Seaboard companies had spent approximately $1,000,000 attempting to develop deep oil production in the area.

One of the new tests is on the J. H. Lewis tract in the W. P. Wyche Survey and about ½ mile northwest of the discovery distillate well. The other test is in the Stephen Hatton Survey and on the Wesley Cox lands, about a mile east of the discovery. Roads are being built to both operations. This is the first activity for the field since the original partnership drilled two failures in the summer of 1939. The new operators recently have been active in adding new leases to their holdings and have been unitizing other leases for future drilling. Lone Star Gas Co. has already started work on a 22-mile, 12-in. pipe line to carry gas from the field to the company's Trinidad station on its Cayuga-Irving line, where a natural-gasoline plant is in operation.

East Central Wildcats

Several new wildcats were starting as others were resuming work in the East Central Texas area. Wright Drilling Co., of Houston, is spudding its No. 1 Hart & Marberry, R. W. Box Survey, projected Woodbine sand test in the Hemby gas area, about 8 miles southwest of Elkhart, in southwestern Anderson County. The well is ¾ mile southwest of the R. H. Williamson, 1 Rogers, wildcat which blew out from the Woodbine sand and wasted approximately 10,000,000 cu. ft. of gas daily for several weeks before being shut in and finally abandoned.

A Henderson County wildcat, La Rue, 1 Davis, Harris Survey, 3 miles northeast of Stockard, has been drilled to a total depth of 2,489 ft. and shut down for orders. It is a projected Woodbine test and is located on a 5,000-acre block out of which spreads have been reported sold to several larger independent operators.

In the Stewards Mill area of northern Freestone County a Woodbine sand wildcat, Arkansas Fuel Oil, 1 Utley, Claypool Survey, has set 106 ft. of surface pipe and is preparing to drill ahead with rotary.

A long-shutdown wildcat in Upshur County is preparing to resume operations the first of the week. It is A. C. McGahey, 1 Ludie Turner, A. Butler Survey, in the northeastern part of the county. Richards & Holloway, Inc., Tyler, have signed a drilling contract with the operator for a 4,500-ft. test of the Woodbine sand. The test is on a 4,000-acre block and is about 4 miles northeast of Coffeyville.

EASTERN TEXAS COMPLETIONS

East Texas Fields

(One-hour gages)

Gregg County

Longview area: T. D. Humphries, 12 Branson, 72 bbl., 3,604-16 ft.
Shell, 40 Richey, 66 bbl., 3,569-3,830 ft.
Kilgore area: Producers Investment, 12 Butts, 30 bbl., 3,538-58 ft.

Upshur County

Longview area: T. W. Lee, 1 Sprouse, 40 bbl., 3,699-3,703 ft.

EAST CENTRAL TEXAS

(24-hour gages)

Cherokee County

Wildcat: Texas Co., 1 Cherokee Development, dry at 5,114 ft.

Fannin County

Wildcats: C. Newburn, 1 Allen, temporarily abandoned.
A. B. Powell, 1 Barker, abandoned at 651 ft.

Freestone County

Wortham field: McNeil Pet., 1 Linley, 69 bbl.

Houston County

Grapeland field: Grapeland Oil, 1 Herrod-Finch, 100,000,000 cu. ft. of gas, 5,962-92 ft.
Lone Star Gas, 1 W. L. Moody, 115,000,000 cu. ft. of gas, 6,001-35 ft.

WEST CENTRAL AREA

FORT WORTH, Tex., July 22.—Holding the attention in the West Central Texas area during the week was the completion of a new gas-field discovery in Cole-

man County, an increase in production after acid treatment for Eastland County's recent discovery, and the starting of several new wildcat tests.

Coleman County's new gas field was opened by Lone Star Gas, 1 Anna Wells, located 606 ft. from the north and 770 ft. from the west lines of Subdivision 2, M. A. Fisk Survey 630. The test was contracted to 2,400 ft., but encountered the Marble Falls lime at 2,211 ft. After drilling to a total depth of 2,271 ft. the section was treated with 2,000 gal. of acid and responded with a daily gas potential of 7,000,000 cu. ft. Steady development is reported for Lone Star's holdings in the area.

Eastland County's discovery of several weeks ago, Jones & Stasney and Groover & Rose, 1 McElreath, 5 miles southwest of Cisco and in the SW Section 104, Block 3, H.&T.C. Survey, was reported making about 150 bbl. of oil daily with 500,000 ft. of gas as the week closed. Production is from a lime drilled with saturation from 2,963-91 ft. Several tracts in the operators' 3,000-acre block were sold prior to the completion of the well. However, to date, no new tests have been staked in the area.

Limiting the southern end of the Stribling field of Stephens County, Falcon Oil, 1 Atchison, Robins Survey, ½ mile south of a producer, was dry and abandoned at a total depth of 4,713 ft. The outpost drilled hard dry Caddo lime from 3,697-4,713 ft. The hole was loaded with 250 bbl. of live oil and treated with 2,000 gal. of acid. However, only about 30 bbl. of the oil load was recovered on swabbing tests.

On the southwest corner of the Fagg field in Stephens County Tolbert, 1 Mattin, Section 1325, T.E.&L. Survey, about 1½ miles southwest of production, is being completed for an extension with a potential of approximately 30 bbl. daily with an equal amount of water. Total depth of the well is 3,985 ft.

WEST CENTRAL AREA COMPLETIONS

(24-hour gages)

Coleman County

Wildcat discovery: Lone Star Gas, 1 Anna Wells, 7,000,000 cu. ft. of gas, 2,211-71 ft.

Eastland County

Wildcat discovery: Jones & Stasney and Groover & Rose, 1 McElreath, 140 bbl., 2,963-91 ft.

Stephens County

Stribling field: Falcon Oil, 1 Atchison, dry at 4,713 ft.

Illinois Fields

(Continued from Page 184)

Salem 3,796 ft., T.D. 3,812 ft., pumped 40 bbl. from Salem; an old well drilled deeper.

Wildcats

Bell Oil & Gas, 1 Flanders ..... NE SE NW 3-2s-7
Fredonia 3,209 ft., pay 3,210-15 ft. and 3,227-30 ft.; 5½-in. at 3,206 ft.; waiting on cement.
H. Scott, 2 Flanders ..... NW NW NE 3-2s-7
Rigging up.

Wabash County Completions

Longhorn, 1 Heil, SW NW of add. 40 ac. to 18-3s-13w (Odd section.) Cypress 2,470-90 ft., T.D. 2,496 ft., shot 40 qt., pumped 108 bbl.
J. W. Dutton, 1 Guerswife ..... NE NW SW 3-1n-13w
McClosky 12-ft. pay in two streaks 2,672-07 ft., flowed 534 bbl.
W. E. Huff, 2 Cox ..... SE SE NW 3-1n-13w
McClosky 2,717-20 ft., T.D. 2,750 ft., dry.
McBride, 1 Fritchie ..... SE SE NW 3-1n-13w
Fredonia 2,677 ft., T.D. 2,785 ft., dry.
Blankenship et al, 1 Berry ..... NE NW NE 30-1s-12w
Abandoned location.
Mabee Drilling, 10 A. P. Bump ..... NW SW NW 9-2s-13w
Cypress 2,421 ft., T.D. 2,462 ft., shot 70 qt., pumped 75 bbl.
Sam Yingling, 1-A Compton ..... SE SE SW 19-2s-13w
Cypress 2,465-70 ft., T.D. 2,550 ft., dry.
Longhorn, 2 Helm ..... NE NW NE 23-3s-14w
McClosky 2,844-55 ft., acid 2,000 gal., pumped and flowed 250 bbl. Well also showed saturation in Tar Springs 2,095-2,105 ft. and Cypress 2,502-12 ft.

Wildcats

U. S. Oil, 1 Stillwell ..... SW NW SE 7-1-11w
Shut down for orders, 1,471 ft.
Dan Whatley, 1 Feasherley ..... SE NE SE 28-1s-13w
Rotary location.

St. Clair County Completion

Chas. Osborne, 1 Proffer ..... SW NW NE 28-1n-10w
Trenton 484 ft., T.D. 524 ft., pumped 10 bbl. oil and 80 bbl. water.

Wildcat

Harris, E. T., 1 City Park ..... NW SE 34-2-9w
Drilling 1,145 ft.

Washington County Completions

Esperanza, 1 Baldwin ..... SW SW NE 14-1s-1w
Benoist 1,628 ft., T.D. 1,635 ft., dry.
Magnolia, 4 Pete Kozuszek ..... NW NE SW 26-3s-3w
Benoist 1,251 ft.; T.D. 1,284 ft., shot 14 qt., pumped 60 bbl. oil and 11 bbl. water.

Irvington Pool

Gulf, 1 Stanton ..... NW NE NW 26-1s-1w
T.D. 1,559 ft., pumped 120 bbl.

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Gulf, 5 Buhl ..... NW SE SW 23-1s-1w
T.D. 1,534 ft., pumped 240 bbl. oil and 52 bbl water.
Gulf, 3 Buhl ..... SE SE SW 23-1s-1w
T.D. 1,554 ft., P.B. to 1,550 ft., pumped 165 bbl. oil and 216 bbl. water.

Jefferson County Completion

Hughes Pet., 1 Self ..... SW SE SE 10-1s-2e
St. Louis 2,370 ft., T.D. 2,372 ft., dry.

Wildcat

Rodger C. Young, 1 Whittington ... SE SE SW 30-4s-3
T.D. 3,480 ft., Salem 3,270 ft., show oil 2,650-65 ft., P.B. 2,661 ft., waiting on cement.

White County Completions

New Penn Dev., 2 C. R. Whitton NW NW SW 28-3s-9e
McClosky 3,422-29 ft., T.D. 3,432 ft., 3,000 gal. acid, flowed 290 bbl.
Sun, 1 Adam Brown unit ..... N½ NW SE 2-4s-9e
Ste. Genevieve 3,325 ft., pay 3,369-71 ft., pumped 76 bbl.
Superior, 2 Fitton ..... NE NE NE 27-4s-14w
Ste. Genevieve 2,856 ft., T.D. 2,996 ft., pumped 90 bbl.
Carter, 6 O. Poole ..... NW SW SE 24-6s-8e
Hardinsburg sand 2,505-35 ft., T.D. 2,540 ft., shot 10 qt., pumped 73 bbl.

Storms Pool

Exchange-Ohio, 1 A. Pearce ..... SE NE SE 11-6s-9e
Waltersburg sand 2,259-74 ft., shot 10 qt., flowed 202 bbl.
Exchange-Ohio, 8 Rudolph ..... NW SW SW 12-6s-9e
Waltersburg 2,250-68 ft., flowed 122 bbl.
Eason, 4 N. Storms ..... NW SE SE 15-6s-9e
Waltersburg 2,214-55 ft., flowed 150 bbl.
Carter, 1 Wm. Tuestell ..... SW NE NE 35-6s-9e
St. Louis 3,096 ft., T.D. 3,098 ft., dry.
R. E. Johnston, 1 Ott Cox ..... SE NW SE 5-4s-14w
Abandoned location.

Wildcats

Mercer Bros., 1 Chapman ..... NE NE NW 26-6s-8
Cypress sand 2,704-10 ft., drilling 2,780 ft.
B. Fleming, 1 Holderman ..... NE NE NE 13-6s-10e
Moving in rotary.

Gallatin County Completion

Fields et al, 7 Green ..... NE NE NE 20-9s-9e
Waltersburg 1,759 ft., T.D. 1,800 ft., pumped 60 bbl.

Wildcat

Egyptian Tie & Timber, 2 fee .... SE NE SW 16-8-10
Running casing at 100 ft.

Alexander County Completion

Arnold & Middleton, 1 Hodges .. SE SE NW 35-15s-2w
T.D. 2,019 ft., dry.

Saline County

Patler et al, 1 Thaxton ..... E½ NW SW 28-8s-7
Moving in machine.
Parker & Son, 1 fee ..... NW SW SE 8-10s-5
Aux Vases 2,381 ft., St. Louis 2,684 ft., drilling at 3 067 ft.
Rowe et al, 1 Summers ..... SE SE SE 18-8s-6e
Moving in rotary.

Shelby County

Walker, 1 Odell ..... E½ SE NW 20-14n-2e
Drilling 2,212 ft.
Trulock, 1 Lantz ..... SE SE SE 36-13n-2e
Drilling 735 ft.

Tazewell County

Bartelmay, 1 Mathis ..... SW NW SW 24-2s-3w
Shut down 806 ft.

Randolph County

Christian & Wagoner, 1 Waltemater NW NE 25-7s-6w
Aux Vases 875 ft., Ste. Genevieve 975 ft., good show oil 870-88 ft., drilling 980 ft.
R. H. Anderson, 1 Cassoutt SW NW SW 16-7s-7w
Salem 573 ft., Warsaw 830 ft., Fern Glen 1,102 ft., drilling 1,230 ft.

MISCELLANEOUS WILDCATS

Jasper County

Krolin et al, 1 Leggitt heirs .... SW SW NE 4-6n-14w
Drilling 1,500 ft.

Brown County

J. G. Buell, 1 Doane ..... NE NW SE 32-2s-4w
Drilling 459 ft.

Crawford County

Dorning & Leaser, 1 Ducommon N½ NW NW 31-6n-12w
McClosky 1,304-1,400 ft., and 1,444-54 ft.
Kidd & Thomas, 1 Headley ..... SE SW SE 8-7-11w
Set 1,411 ft., 6⅝-in. pipe.

Edgar County

Harry Dunn, 1 Irwin ..... NE NW NW 14-14n-14w
Drilling 365 ft.

Ford County

Nelson et al, 1 Urp ..... SW NW SE 19-24-7
Running casing 985 ft.

Franklin County

E. S. Adkins, 2 Old Ben ..... SW SE NE 24-6s-1
Hardinsburg 2,115 ft., Golconda 2,167 ft., drilling 2,310 ft.

Edwards County

Superior, 1 Scott ..... SE SE NE 36-2s-10
Salem 3,530 ft., Osage 3,885 ft., drilling 4,372 ft.
Herschbach Pet., 1 Perkins ..... NE SW SW 2-3s-10
Buhl 1,962-80 ft., McClosky 3,202 ft., drill-stem test opposite Buhl 1 hour recovered 450 ft. mud, 170 ft. of fresh water. Shut down for orders.

Hamilton County

Kingwood, 1 Morris ..... SW SE NE 34-5-6
Pumping 30 bbl. oil and 10 bbl. water; testing.
Taylor Drilling (N. Amer. Oil), 1 Graves ... 15-6s-6e
Waltersburg 2,357 ft., Tar Springs 2,415 ft., Hardinsburg 2,570 ft., Cypress 2,820 ft., drilling 2,992 ft.

Iroquois County

Whitlow, 1 Gannon ..... NE SW SE 5-27-12w
Pottsville 1,310 ft.

Henry County

Else, 1 Patton ..... SE SE SW 1-17n-3e of 4 p.m.
Trenton 703 ft., T.D. 725 ft., dry.

Knox County

C. W. Lomax, 1 Nelson ..... SE SW NE 20-10-1
Drilling 1,180 ft.

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3	Bolts	Super Temp., 140,000 lbs. Tensile
4	Nuts	Hex. Semi-Finish (S. A. E. 1030)
5	Valve	Chrome Steel (Heat Treated)
6	Valve Retainer	18-8 Stainless Steel
7	Valve Lever	18-8 Stainless Steel
8	Valve Guide Plate	18-8 Stainless Steel
9	Guide Plate Screw	18-8 Stainless Steel
10	Valve Seat	Chrome Steel (Heat Treated)
11	Gasket	Compressed Asbestos Graphited or Soft Iron
12	Bucket Assembly	18-8 Stainless Steel
13	Inlet Tube	Wrought Iron
14	Bucket Weight	Cast Iron

ARMSTRONG TRAPS
Automatic Drainage for
REFINERIES · GAS PIPE LINES · DRILLING RIGS

Finding of Oil in Stratton Field Interests Operators

By F. L. SINGLETON

CORPUS CHRISTI, Tex., July 22.—Development in the newly opened oil area, flanking the east side of the Stratton gas and distillate field, Nueces County, was holding the attention of operators in the Southwest Texas district as drill-stem testing in a new sand recovered pipe-line oil and a production test was scheduled to be made on a second well.

Southern Minerals, 2 Bertram, 933 ft. south of the discovery oiler of the Stratton gas field, Nueces County, cored sand at 6,576-90 ft. and on a 7-minute drill-stem test 240 ft. of pipe-line oil was recovered and working pressure built up to 400 lb. Additional sand showing oil was cored at 6,577-79 ft. and the well is coring ahead below 6,600 ft. The discovery sand was cored at 6,381-5,400 ft. where a 15-minute drill-stem test recovered 2,140 ft. of oil and tested 140 lb. working pressure. Production on the flank of this structure was opened in June with the completion of Southern Minerals, 1 Bertram at 6,390-98 ft. Offsetting the discovery well to the north, Conroe Drilling Co. is cementing casing to test No. 1 Sellers although details as to where the sand was cored were not available.

Minimum Wear on Line and Sheave with McKISSICK Safety FLOOR BLOCKS

This is made possible through use of the Universal Adapter—so designed that plenty of side sway is permitted, without any undue wear on the line or sheave. Ball-bearing swivel assembly permits block to freely swivel under heaviest loads.

Our Safety Floor Blocks are available with base plate or latch-type becket. The guards are so constructed that they do not need to be detached for threading the line, which assures permanent safety during the life of the block.

Available in four sizes with single bearing, and two additional sizes with double bearings—sheave diameters from 12″ to 24″.

At Supply Stores

McKISSICK PRODUCTS CORPORATION
Tulsa, Oklahoma

All blocks equipped with high load solid roller bearings.

Another Nueces County operation which is attracting much attention is Richardson Petroleum, 1 Boy Scouts of America, located in the Robstown townsite. The well was drilled to a total depth of 6,869 ft. and 5½-in. casing was cemented at 6,692 ft. after an electrical survey and side-wall cores showed favorable indication in a new sand at 6,500 ft. The casing was perforated at 6,540-55 ft., and swabbing recovered wash water with no showing of oil or gas. The hole was then measured with wire line and electrical-survey instruments, and the measurements were found to be 14 ft. off. A cement-squeeze job on the original perforations was made and the well is being retested. This well is south of production and the outcome will have much bearing on future development within the townsite where numerous drilling permits have been granted by the Robstown city council.

Approximately 1½ miles east of the above well, Texas Conservative, 1 T. H. Isensee, which had been shut down for several weeks at a total depth of 6,500 ft., has resumed drilling and the contract depth has been extended to 7,500 ft. Meanwhile, drilling continued on four other wildcats. Fred Shield, 1 Moore estate, 3 miles southwest of the Baldin field, is drilling below 6,500 ft. In Nueces Bay, Humble, 1-B State is drilling below 5,300 ft. This well is west of the same company's No. 1 State, recently completed as a gas well, and drill-stem testing in the same sand section earlier in the week tested 270 lb. working pressure on a 30-minute test at 3,950-4,013 ft. In the same area and about 1½ miles south of East White Point field, Stanolind, 1 State is drilling in shale below 6,200 ft. H. D. & H., 1 State, 3 miles southwest of the Flour Bluff field in Corpus Christi Bay, is drilling in shale below 3,500 ft. In the new East Flour Bluff field, Humble Oil & Refining Co. is preparing to spud No. 1 Duncan, while location was made in the same field for No. 2-D Flour Bluff-State in Tract 30.

Two producers were added to the active Wade City field, Jim Wells County, Rodney DeLange, 1 McNeil, flowed 268 bbl. per day through a $\frac{1}{4}$-in. choke from sand at 4,918-24 ft. Anderson-Prichard, 3 A. G. Mueller was completed through perforated casing at 4,905-10 ft., flowing at the daily rate of 235 bbl. through a $\frac{1}{4}$-in. choke.

In Jim Hogg County and northwest of the Randado field, Patel Drillers were testing No. 1 Gutierrez. This well was drilled to a total depth of 3,156 ft. and 5½-in. casing was cemented on bottom after drill-stem testing in the Colorado and Yegua sands at 2,800 ft. and 3,100 ft. tested several hundred pounds working pressure and a small amount of oil-cut drilling mud.

J. K. Culton, 1 Cole, a wildcat located near the Goliad townsite, Goliad County, is drilling in shale below 5,168 ft. Sand with a slight oil and gas odor was cored at 4,055-59 ft., and sand showing sulfur water was cored at 4,064-80 ft.

Drilling was started in the Seadrift area, Calhoun County, on Coronado Corp., 2 Welder, 1,140 ft. west of the discovery well which has been completed for a producer although no gage is available. The well has been testing for several days through perforated casing at 5,654-55 ft. and 5,658-59 ft., and on a recent gage, the well flowed at the rate of 10 bbl. of fluid per hour through a ½-in. choke. Ten per cent of the fluid was oil and the balance wash water. Tubing pressure was 200 lb., and shut-in casing pressure 2,350 lb.

Norsworthy Production, 2 Fagan, in the northwest extension area of the Fagan field, Refugio County, is preparing to retest after squeezing off perforations at 5,600 ft. and at 5,308-12 ft. The well flowed pipe-line oil for a short time, but salt water broke in.

In Victoria County, Colton & Colton, 1 Terrell, perforated casing at 5,279-82 ft. and 5,287-89 ft., and is in the process of testing. This well was originally completed as the discovery well of the Terrell field in sand at 5,275-84 ft., but due to a decline in production, the hole was deepened to a total depth of 5,610 ft., and 5½-in. casing was cemented on bottom to test several promising showings. Several tests have been made, but all have shown salt water.

Location for a second well was staked in the Thomaston Wilcox field, De Witt County, by Atlantic Refining Co. The location is No. 1 W. E. Conwell, situated on a 137.01-acre tract, being in the Charles Lockhart Survey, about 1 mile east of No. 1 Pearl Conwell, the discovery well, completed as a gas and distillate producer in the Wilcox sand at 7,855-85 ft.

Recent developments in the shallow Glen field, Webb County, have extended production, and as a result the field is recovering an increase in drilling operations.

(Continued on Page 190)

Seek to Extend Bennett Area Of Wasson Field, West Texas

By R. MARNE SANFORD

MIDLAND, Tex., July 22.—Holding the attention in West Texas as the week closed were reports of renewed efforts to extend the Bennett sector of the large Wasson field of Yoakum County further to the northeast. Also drawing interest was a reported gage on a 2-mile south extension to Andrews County's newest field and increased work in the Soma and Todd deep areas of Crockett County.

Northern West Texas Area

In the Waples-Platter area approximately 1¾ miles northeast of the Bennett area in Yoakum County, a new wildcat test has been staked and another is reported preparing to deepen. The new wildcat is Sloan & Zook and T. N. Sloan, 1 Waples-Platter, located about ½ mile northeast of the lone producer drilled last year as an outpost to the Bennett field. The new operation is in the SW SE Section 565 and will attempt to confirm the geological report that Shell Oil, 1 Waples-Platter confines the large Wasson structure. At the time the Shell test was drilled it was stated by geologists that, due to the exceptionally low tops of markers, the large Wasson field high dropped off just northeast of the Bennett area.

Four miles further east from the Shell well, which, even though structurally low, was completed for 161 bbl. daily, the recently abandoned Amerada and Plymouth, 1 Brownfield was being readied for deepening. It was temporarily abandoned several months ago at a total depth of 5,769 ft. after recovering only sulfur water on a test of saturation from 5,750-69 ft. The test will be deepened an additional 500 ft.

Definitely extending the Atlantic's field in southern Andrews County 2 miles to the south, Atlantic and Helmerich & Payne, 1-23 University, Section 23, Block 11, University Lands Survey, gaged 172 bbl. of oil and 14 bbl. of water in 19 hours and 57 minutes last week. It was shut in at the end of the test for additional storage. Production is from a lime shot with 800 qt. from 4,248 to 4,470 ft.

Broadening the limits of the Duggan field of Cochran County and tending to further link the area with the Slaughter field of Hockley County, Texas Co. gaged its No. 1-F Mallett, southeast of the Duggan field, at 458 bbl. daily. The potential was based on a 6-hour flow of 114 bbl. through ⅞-in. choke and through tubing set at 5,049 ft. The pay section was treated with 2,000 and 5,000 gal. of acid in two treatments. It is located in the SW cor. of Labor 25, League 51, Scurry County School Lands Survey, about a mile east and slightly north of a lone outpost producer drilled 2 years ago by Texas Co.

NORTHERN WEST TEXAS COMPLETIONS
(24-hour gages)

Andrews County

Means field: Humble, 26 Means, 848 bbl., 4,466-4,536 ft.

Gaines County

Seminole field: Atlantic, 4-C Riley, junked at 3,138 ft.

Yoakum County

Wasson field: Aloco, 7-C Willard, 797 bbl., 4,906-5,215 ft.
Deep Rock Oil, 2 Anderson, 520 bbl., 4,962-5,234 ft.
Humble, 29 Wooten, 830 bbl., 4,910-5,114 ft.
Oil Development, 5-761 fee, 1,254 bbl., 4,890-5,205 ft.
Shell, 10-E Baumgart, 1,175 bbl., 4,880-5,180 ft.

SOUTHERN WEST TEXAS AREA

Olson Drilling (formerly Moore Exploration Co.), 1 Hoover, wildcat discovery well resulting from the activity started with the opening of the Soma field 2 months ago in western Crockett County, has been officially gaged. The well, located in Section 16, Block 1, G.C.&S.F. Survey, about 9½ miles east of the Soma field, made 53 bbl. of oil in 24 hours, pumping. The flow was after a 360-qt. shot from 2,012 to 2,145 ft.

In the Soma field the Soma Syndicate has staked a new outpost location ¼ mile north of its discovery well. It is No. 2 Noelke and is located between the discovery well and the M. & M. Drilling, 1 Bouscaren, an outpost which is shut down after finding only a show of oil in drilling to a total depth of 1,491 ft.

J. N. Gregory of Midland and Bryce McCandless of San Angelo are drilling below 2,131 ft. at their No. 1 Shannon estate, League 3, Archer County School Lands Survey, 3 miles northeast of the Soma discovery well.

Todd Deep Area

Two new locations have been made in the Strawn producing Todd deep field of Crockett County, one by Continental Oil Co. and the other Amerada Petroleum Corp. The former's test is No. 5 Todd, 660 ft. from the south and 1,980 ft. from the east lines of Section 29, Block WX, G.C.&S.F. Survey, a southeast-edge test for the three-well field. Amerada's location is a ½-mile outpost and is No. 1 Todd, 1,980 ft. from the south and 660 ft. from the east lines of Section 24, same block and survey. Machinery is being rigged up for the immediate drilling of both operations.

New Wildcats

Upton County received two new wildcats during the week. R. H. Keen staked No. 1 B. S. Taylor, 330 ft. from the west and 1,650 ft. from the south lines of Section 22, Block 2-B, G.C.&S.F. Survey. The other wildcat was by Texas Pacific Coal & Oil Co. and is No. 1 Eddleman, located in the extreme western part of the county and 2,200 ft. from the north and 1,320 ft. from the east lines of Section 208, Block F, C.C.S.D.& R.G.N.G. Survey. It is 1½ miles southeast of production in the McElroy field and no failures have been drilled between the location and the field.

A semiwildcat test was staked early in the week in Crane County by Gulf Oil Corp. It is No. 33 Waddell, northwest outpost to the field opened recently by Gulf at its No. 31 Waddell, between the Dunes and Waddell fields. The new test is a 3,500-ft. operation to be drilled with cable tools and is located 1,650 ft. from the south and 990 ft. from the east lines of Section 31, Block 25-B, P.S.L. Survey. The No. 31 Waddell was completed for 100 bbl. daily, pumping, from a total depth of 3,427 ft., plugged back from 4,038 ft. The area opened by the well has been named the Ella Waddell field.

SOUTHERN WEST TEXAS COMPLETIONS
(24-hour gages)

Crane County

Tubb field: American Liberty, 10 Tubb, junked after spudding.
Humble, 39 Tubb, 6,096 bbl., 4,350-95 ft.
Jordan field: Kewanee Oil, 8-B University, 1,088 bbl., 3,491-3,578 ft.
McElroy field: Gulf, 221 McElroy, 1,387 bbl., 2,675-2,905 ft.

Crockett County

Soma field: Lewis & Shannon, 1 Noelke, 32 bbl., 1,064-1,100 ft.
Discovery well, Olson Drilling, 1 Hoover, 52 bbl., 1,984-2,150 ft.
Wildcat, Moore Exploration and Olson Drilling, 1 Noelke, dry at 1,518 ft.

Ector County

Foster field: Atlantic, 13 Henderson, 236 bbl., 4,003-4,250 ft.
Humble, 2-B Henderson, 1,138 bbl., 3,958-4,195 ft.
Shell, 3-C Witcher, 1,445 bbl., 3,910-4,145 ft.
Goldsmith field: Gulf, 295 Goldsmith, 253 bbl., 4,192-4,212 ft.
Jordan field: Cities Service, 2-B University, 611 bbl., 3,490-3,642 ft.
North Cowden field: Broderick & Calvert, 13-A Holt, 1,058 bbl., 4,250-4,455 ft.

Pecos County

Tobarg field: Cardinal Oil, 60-E Tippett, 10 bbl., 537-43 ft.
Rife, 19 Tippett, 8 bbl., 418-55 ft.
Yates field: Ohio Oil, D-1-1 Yates, dry at 295 ft.
White & Baker field: John Lewis, 1 White & Baker, 179 bbl., 2,063-96 ft.
Masterson field: Childress Royalty, 12 Masterson, 66 bbl., 1,487-1,504 ft.

Schleicher County

Page field: Cooper Gas, 1-32 Page, 28,400,000 cu. ft., 5,380-5,491 ft.

Upton County

McCamey field: J. S. Pittman, 1 Ricker, 150 bbl., 2,232-83 ft.

Ward County

Hutchins field: Gulf, 138 Hutchins, 94 bbl., 2,565-3,085 ft.
Gulf, 143 Hutchins, 48 bbl., 2,602-65 ft.

Winkler County

Keystone field: Gulf, 37 Keystone, 654 bbl., 3,262-3,436 ft.

TEXAS PANHANDLE

AMARILLO, Tex., July 22.—Increased work marked the trend of the past week's activity in the Panhandle district as 17 new locations were staked and a total of 16 new oil wells and 6 new gas wells were gaged. The total new oil potential for the week was 3,865 bbl.

Of the new locations, 11 were in Hutchinson County and 3 each in Carson and Gray counties.

PANHANDLE COMPLETIONS
(24-hour gages)

Carson County

Shell, 15 Cooper, 404 bbl., 2,945-3,090 ft.
Texoma Gas, 5-M McLaughlin, 17,500,000 cu. ft. of gas, total depth 2,640 ft.
Texoma Gas, 6-M McLaughlin, 17,900,000 cu ft. of gas, total depth 2,670 ft.

Gray County

A. Crenshaw, 7 Benton, 461 bbl., 3,038-3,140 ft.
Drilling & Exploration, 1 Leopold, 274 bbl., 3,299-3,310 ft.
Gulf, 2 Hughey, 269 bbl., 3,118-3,286 ft.
King Oil, 13 Castlebury, 259 bbl., 3,250-80 ft.
King Oil, 6 Donkin, 215 bbl., 3,232-81 ft.
Sinclair Prairie, 5 Pope, 146 bbl., 3,115-3,280 ft.
Southern Petroleum, 5 Archer, 117 bbl., 3,180-3,331 ft.

Hutchinson County

Barnsdall, 11 Lewis, 727 bbl., 2,955-3,041 ft.
H. W. Ingerton, 1 Luginbyle, 251 bbl., 3,082-3,155 ft.
Pennowa Oil, 1 Harvey Sisters, 20 bbl., 2,995-3,031 ft.
Power Petroleum, 9 Haile, 46 bbl., 3,015-50 ft.
Stanolind, 24 Watkins, 264 bbl., 2,884-2,938 ft.
Harry Stekoll, 11 Whittenburg, 180 bbl., 2,992-3,080 ft.
Harry Stekoll, 4 Whittenburg, 190 bbl., 2,852-2,902 ft.
Harry Stekoll, 7 Whittenburg, 35 bbl., 3,010-99 ft.

Moore County

Shamrock Gas, 1 Powell, 2,520,000 cu. ft. of gas, 3,305-3,400 ft.
Texoma Gas, 24-P Sneed, 7,500,000 cu. ft. of gas, 2,343-2,580 ft.
Texoma Gas, 1-Par Walters, 46,200,000 cu. ft. of gas, 3,050-3,420 ft.

SOUTHEAST NEW MEXICO DISTRICT

HOBBS, N. M., July 22.—One new wildcat discovery and renewed work at several of the district's closely watched wildcat tests held the attention in southeastern New Mexico at the close of the past week.

The new discovery was in Eddy County and about 7 miles west of the old Artesia sector. It was Martin Yates, Jr., 1 E. L. McCall, on the north edge of Lake McMillan. Oil sand was drilled from 1,022 to 1,032 ft., total depth, and the natural production was estimated at 30 bbl. daily. The section was shot with 60 qt. and the hole bridged. When the bridge was knocked out the well made three heads of oil over the mast. The well was still cleaning out as the week closed and was estimated good for approximately 75 bbl. daily. It is located 330 ft. from the south and 990 ft. from the west lines of 24-18s-26e.

After a long period of shutdown, Trojan Oil, 1 Grant, wildcat test in Eddy County and in 33-20s-25e, has resumed drilling and was last reported below 1,620 ft. in lime.

Four miles southeast of Lake McMillan in Eddy County, Bedingfield, 1 Seale, located 330 ft. from the south and east lines of 10-20s-27e, is shut down at 188 ft. awaiting 10-in. casing.

SOUTHEAST NEW MEXICO ACTIVE WILDCATS

Chaves County

Elmer J. Fisher, 1 Hill ..... NW SW 8-15-25
R.U. to D.D. below 850 ft.

Eddy County

Sanders Bros., 1 De Temple ..... NW NW 27-19-31
S.D.O. 2,410 ft.
Bassett & Birney, 1 Platt ..... SW cor. 26-18-26
Old failure being D.D. below 2,342 ft.; P.B. 1,125 ft.; shot 160 qt., 1,080-1,122 ft.; S.S.O.; reshot 470 qt.; cag. split; H.F.W.; S.D.O.
Wax Weathers, 1 Flood ..... SE SE 24-18-23
S.D.O. 1,740 ft.

M. Yates, Jr., 1 McCall ..... SW SW 24-18-26
Drld. sat. 1,022-32 ft.; est. 75 B.O.P.D.
Jack Harris, 1 Josey ..... SW SE 19-20-23
S.D.R. 286 ft.
Trojan, 1 Grant ..... SW NE 33-20-25
Drlg. 1,620 ft.
Schumacker, 1 Levers ..... NE NE 33-16-29
Drlg. 2,355 ft.
J. B. Mulcock, 1 Etz ..... NE SW SW 25-16-30
S.D.R. 2,530 ft.
Everts & Moran, 1 Ranuz ..... NE NW 18-23-26
T.D. 1,373 ft.; U.R.
J. B. Cowden, 1 State ..... SW SE 3-17-20
Between Root field and High Lonesome. Drlg. 550 ft.
G. A. Grober, 1 Wright ..... SW SW NW 25-18-28
S.O.&G. 1,382 ft.; est. 10 B.O.P.D.; P.B. 2,398 ft.; C.O. after shot at 1,810-70 ft.; tstg.
Bedingfield & Walker, 1 Seale ..... SE SE 10-20-27
S.D.O. 188 ft.
G. M. Cone, 1 Hare ..... NW NW NE 14-16-28
3 mi. W of High Lonesome field. S.D.R. 1,400 ft.
Artesia Drlg. Co., 1 Hoffman ..... SE SE SE 14-17-24
Est. 1,250,000 cu. ft. at 938 ft.; drlg. 1,345 ft.
Frederick, 1 Reed ..... NE SW 28-24-28
O.W.D.D.; top gas sand 2,891 ft.; est. 2,000,000 cu. ft. gas; casing set at 2,873 ft. and collapsed at 2,200 ft.; recmtd. csg.; W.O.C.
Thomas & Bowers, 1 H. W. Etz SW SW NW 13-16-30
T.D. 3,744 ft.; P.B. 3,200 ft.; C.O. after shot from 3,140-60 ft.; before shot made 10 B.O.P.D.; flowing by heads through casing; P.B. 3,200 ft.; S.D.O.

Dona Ana County

Picacho, 12 Armstrong 15-23s-1w
W.O.C. 2,660 ft.
Slack & Mahres, 1 Simmons 35-22s-5e
Setting whipstock at 2,785 ft.; T.D.

Luna County

O. D. Berry, 2 Berry 33-22-10
T.D. 925 ft.; S.D.O.

Lea County

Gulf, 1 Amanda E. Drinkard ..... NW SE 25-22-37
Skelly area; 5,000-ft. test. S.S.G. 3,794-3,804 ft.; made 5 gal. oil hourly; T.D. 4,500 ft.; P.B. 3,820 ft. to test upper shows.
J. D. Barefield, 2 Stroup ..... SW NE 12-18-32
S.D.O. 4,055 ft.; S.S.O. 4,040-50 ft.; 1 bailer oil after 2-day shutin; rng. electrical survey at 4,100 ft., S.S. O.&G.; S.D.O. 4,100 ft.; may D.D.
Stanley & Weiner, 1 Saunders ..... NE NE 20-21-38
Spd. and S.D.
Ventura Oil, 1 Lowe ..... SW SE 26-13s-37e
6,000-ft. test. Drlg. 2,200 ft.

Socorro County

Joiner, 1 Belen grant ..... SW SW NW 16-3-1
S.D.O. 845 ft.

Otero County

Ernest, 1 Ernest 20-25-7
S.D.O. 3,204 ft.; S.S.G. 3,180 ft.
Otero, 1 State ..... SE NW 5-22-10
S.D.O. 825 ft.

SOUTHEAST NEW MEXICO COMPLETIONS

Lea County

Halfway field: Sam Weiner, 1 State 16-20s-32e
Made 8 bbl. hourly, pumping from pay at 2,537-53 ft.
Vacuum field: Texas Co., 8-R State 1-18s-34e
Made 221 bbl. in 4 hours from pay at 4,330-4,710 ft.
Texas Co., 4-M State 1-18s-34e
Made 58 bbl. in 5 hours from pay at 4,689-4,710 ft.
Magnolia Petroleum, 68 State-Bridges 15-17s-34e
Made 85 bbl. daily from pay at 4,652-4,742 ft.

Southwest Texas Fields

(Continued from Page 188)

Following the completion of their first producer, Holland & Simmons staked locations for four wells, all of which are located on the A. M. Bruni lease in Block 52, Albercas de Arriba grant. This field looms as one of the most important shallow discoveries to be made in the Laredo district for some time.

In the same county and located in the Bruni field, Tide Water Associated, 8 Bruni, a Wilcox test, is drilling in shale below 8,150 ft. and the outcome of the well should be known within the next 2 weeks. This is the second deep test to be drilled in the field, and the oil and gas showings logged in the first well have encouraged deeper exploration in many of the fields located along this shallow shore-line trend.

Forest Development, 1 Rodgers, which opened a new producing area for the Cockfield trend sector of Duval County, is flowing at the rate of 27½ bbl. of oil per day through a 9/32-in. choke. Tubing pressure was 250 lb., and shut-in casing pressure 425 lb. The well is located in the J. Poitevent Survey No. 275, about 1 mile southwest of the Fitzsimmons field, and about 1⅛ miles northeast of the newly opened Bridwell field. Production is from the Pettus sand at 4,303-06 ft., which corresponds with that of the Fitzsimmons and Bridwell fields, and it is probable that future development may link the new areas with that of the Fitzsimmons field. The area is divided into many ownerships, and additional wildcats are expected to be started in the near future.

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SOUTHWEST TEXAS COMPLETIONS

Aransas-San Patricio Counties

McCampbell field: Southern Minerals, 10 McCampbell, perf. casing 7,111-19 ft., 88 bbl., 7/64-in. choke.

Bexar County

Wildcat: Roger Putnam, 1 Conaway, 860 ft., dry.

Caldwell County

Dale field: Ralph Ogden, 11 Talley, 2,390 ft., dry.

Duval County

Cedro Hill field: Magnolia, 7 Duval County Ranch Co., perf. casing 1,453-55 ft., 43 bbl., ½-in. choke.
Texas, 39 Duval County Ranch, sand 1,437-43 ft., 36 bbl., pumping.
Hoffman field: Magnolia, 15 Well, sand 2,659-65 ft., 140 bbl., 14 hours, jetting.
Piedra de Lumbre field: Government Wells, 3 Lundell, 2,233 ft., dry.
Tarancahuas field: Cox, Hamon, 4 Hoffman, sand 2,086-2,105 ft., 65 bbl., ¼-in choke.
Cox, Hamon, 7 Hoffman, sand 2,038-46 ft., 105 bbl., 5/16-in. choke.
Wildcat: Diamond Half Oil, 1 Cantu, 3,027 ft., dry.

Guadalupe County

Elm Creek field: Bertha, 1 Achterberg, 888 ft., dry.

Hidalgo County

Samfordyce field: Royal, 1 Flores, perf. casing 3,433-37 ft., 49 bbl., ⅛-in. choke.

Jim Hogg County

Colorado field: Humble, 14 King, 3,012 ft., 225 bbl., ⅛-in. choke.
Kelsey field: Humble, 49 McGill, 4,728 ft., 160 bbl., 9/64-in. choke.

Jim Wells County

Ben Bolt field: Bridwell, 2-B Hoffman, perf. casing 5,246-50 ft., 331 bbl., 7/64-in. choke.
Premont field: Cowan, 1 Engleking, 2,368 ft., 3 bbl. oil plus 95 per cent salt water.
South Alfred field: Gilcrease, 1-B Adams, perf. casing 4,688-91 ft., 100 bbl., ⅛-in. choke.
Wade City field: Arkansas Fuel, 1 Noilkamper, sand 4,830-4,950 ft., 182 bbl., 7/64-in. choke.
Gilcrease, 1 Pundt, perf. casing 4,812-14 ft., 75 bbl., 50 per cent salt water, jetting.
H. R. Smith, 2 Albrecht, perf. casing 4,904-08 ft., 90 bbl., ⅛-in. choke.
Wildcat: Henshaw Brothers, 1 Allen, 5,232 ft., dry.

Live Oak County

Wildcat: Luling Oil & Gas, 2 Northern Royalty Corp., 4,455 ft., dry.

McMullen County

Wildcat: H. F. Baker, 1 Delia Galloway, 1,950 ft., dry.
Van Dresar, 3 Brown, 50 ft., temporarily abandoned.

Nueces County

Stratton field: Gulf Plains, 3 Dryden & Mosley, 4,780 ft., 30 bbl., ¼-in. choke.
Wildcat: S. E. W. Oil, 1 Talley, 3,916 ft., dry.

San Patricio County

East White Point field: Republic Natural Gas, 33 Rachal, perf. casing 5,550-80 ft., 155 bbl., ⅛-in. choke.
Sinclair Prairie, 1-974 State, perf. casing 5,625-35 ft., 48 bbl. in 12 hours, ⅛-in. choke.
Wildcat: W. Stewart Boyle, 1 Hodges, 5,003 ft., dry.

Starr County

Rincon field: W. R. Davis, 12-A Slick, perf. casing 4,090-4,110 ft., 228 bbl., 7/64-in. choke.
W. R. Davis, 28-B Slick, perf. casing 4,268-78 ft., 166 bbl., 7/64-in. choke.
W. R. Davis, 31-B Slick, perf. casing 4,087-4,100 ft., 64 bbl., 7/64-in. choke.

Webb County

Glen field: O. W. Killam, 4 Bruni, 2,182 ft., 220 bbl., pumping.
Volpe field: Magnolia, 41 Volpe-Benavides, sand 2,450-60 ft., 35 bbl., pumping.

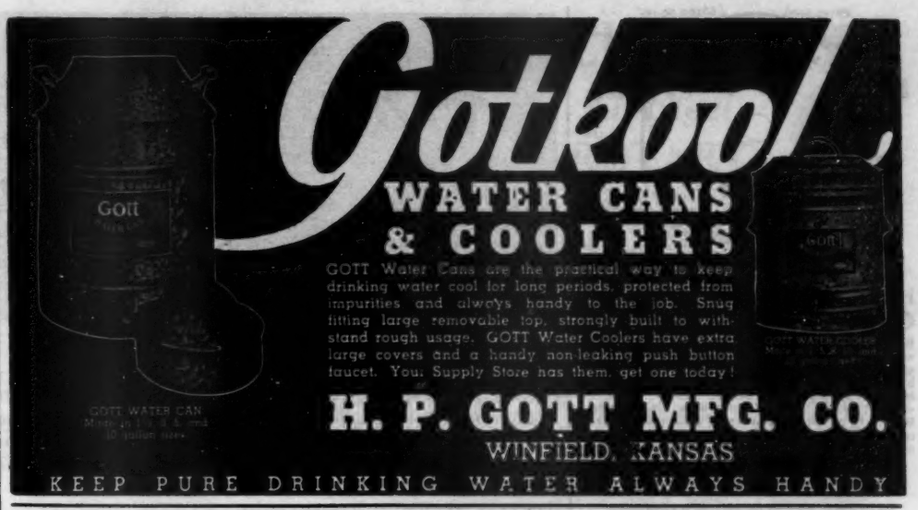
Zapata County

Wildcat: Buffalo Oil, 1 Martinez, 2,260 ft., dry.

Ohio Fields

(Continued from Page 183)

Lawrence County, Union Township: Ohio Fuel Gas, 1 J. B. Rich, Section 8, was shot in the Ohio shales from 2,315-2,692 ft. with 3,000 lb. of gelatin, shut-in volume 110,000 cu. ft. of gas, depth 2,692 ft.
Licking County, Hanover Township: Settles, 1 S. A. Mears, made 120,000 cu. ft. of gas from Cinnamon shale at 1,258-63 ft.
Newton Township: Shrider, 3 K. A. McKinney, Lot 11, is a 2-bbl. pumper, Berea 562-72 ft.
Lorain County, Grafton Township: Forrest, 4 C. W. Wise, Lot 53, 25 bbl. of oil, Berea 129-68 ft.; No. 5 C. W. Wise, 10 bbl. of oil, Berea 121-71 ft.
Perry County, Monroe Township: Ruth, 7 M. P. Denman, Section 28, 4-bbl. pumper, Berea 1,151-70 ft.
Meigs County, Rutland Township: Bowman, 2 J. E. Brown, Section 20, is a small gas well in the Salt sand at 712 ft.
Sutton Township, Tyree, 2 Ira Wolf, missed the Gordon but had 50,000 cu. ft. of gas in the Ohio shales at 3,213-3,313 ft.
Morgan County, Marion Township: Crowley, 1 Earl Bowman, 1-bbl. pumper in first Cow Run at 495-515 ft.
Muskingum County, Blue Rock Township: Atha, 1 Paul Persin, Section 9, is a gas well in the Clinton gaging over a million cu. ft. open flow, depth 4,392 ft.
Licking Township: Wilkin, 1 George Wilkin, ½ mile south of Orville, has an open flow of 1,500,000 cu. ft. of gas, Clinton 3,321-34 ft.
Harrison Township: Palmer & Gusinger, 2 H. T. Benton, Section 19, dry through the Medina, depth 4,374 ft.
Stark County, Lake Township: C. W. White, 1 E. E. Thomas, Section 27, gaged 1,000,000 cu. ft. of gas, Clinton at 4,539-88 ft.
Washington County, Aurelius Township: Wicken & Aikens, 1 J. A. Wickens, Section 30, Injun dry, depth 1,267 ft.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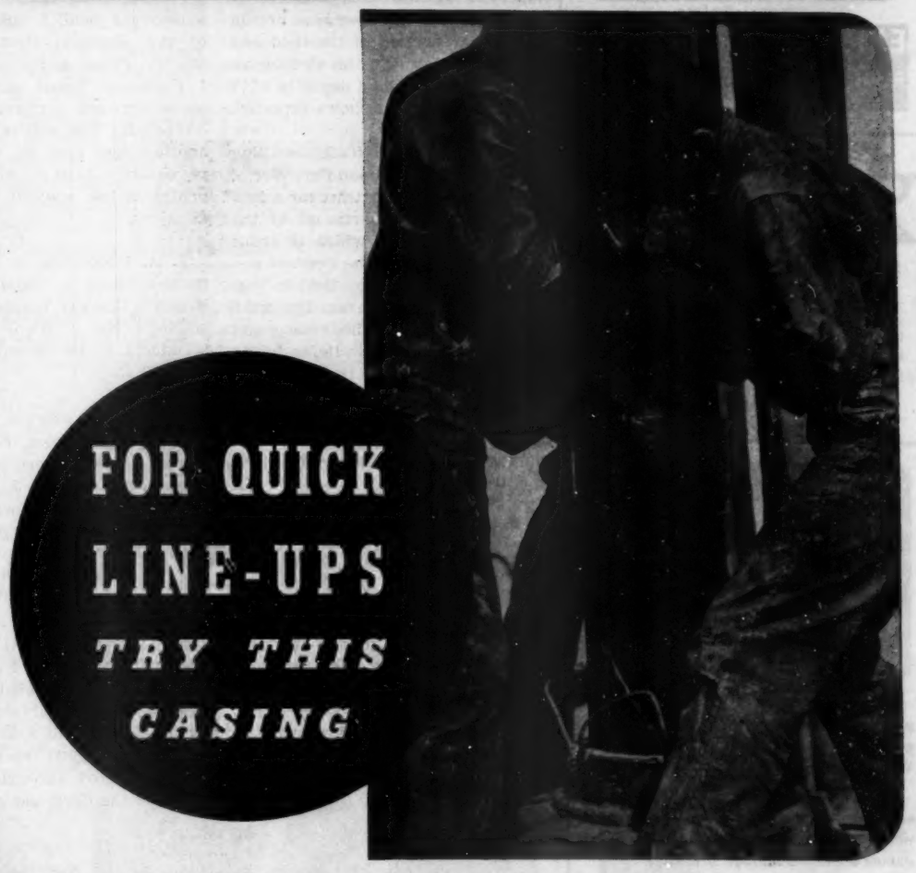

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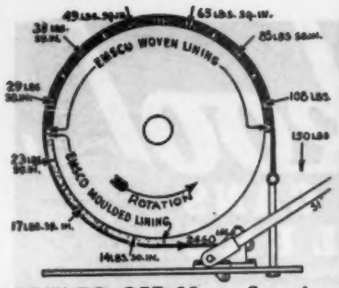

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Among the Drilling

W. B. OMOHUNDRO, operator and contractor of Wichita Falls, Tex., is drilling out casing plugs at 4,700 ft. at a test for Horwitz & Oldom in the Stribling field of Stephens County, West Central Texas. It is No. 4 Maury, located in the J. Koehler Survey, west offset to a producer by Falcon Oil Co. The test was dry in the regular horizon of the field and was drilled deeper as an Ordovician test. The present total depth is 4,713 ft., with only slight shows reported.

GEORGE LIVERMORE, drilling contractor of Odessa and Fort Worth, Tex., has received contract for a new deep wildcat just northeast of the Waples-Platter area which is about 2 miles northeast of the Bennett sector of the large Wasson field in Yoakum County, West Texas. The wildcat will be drilled with rotary and is contracted to 5,500 ft. Being drilled for Sloan & Zook of Bradford, Pa., and Tom N. Sloan, Midland, it will be No. 1 Waples-Platter, located 660 ft. from the south and 1,980 ft. from the east lines of Section 565, Block D, Gibson Survey.

BOSWORTH Drilling Co., Odessa, Tex., has been let contract by Gulf Oil Corp. for a new semiwildcat test on its holdings in the Waddell ranch of Crane County, West Texas. The next test is Gulf's No. 33 Waddell, located 1,650 ft. from the south and 990 ft. from the east lines of Section 13, Block 25-B, P.S.L. Survey, about ½ mile west of the company's No. 31 Waddell, completed for 100 bbl. daily, pumping. The No. 33 Waddell will be drilled to 3,550 ft. with cable tools.

J. W. FRAZIER has reached a depth of 8,250 ft. in his No. 1 Mills, a wildcat located in the Kountze area, Hardin County, Texas, while in the Mount Houston area, Harris County, drilling was started on the contractor's joint wildcat test with Cockburn Oil Corp. and others.

DELTA Drilling Co., Tyler, Tex., has the contract for two deep 8,000-ft. gas tests in the little developed Opelika field of Henderson County, eastern Texas. The tests are to be drilled for Lone Star Gas Co. and Shamrock Gas Co., the two firms recently having acquired the entire holdings of the Tide Water-Seaboard partnership in the field. One of the operations is No. 1 J. H. Lewis, located in the W. P. Wyche Survey, 2½ miles northeast of Murchison. It is 1,373 ft. from the east and west lines of a 193-acre tract. The other test is No. 1 C. A. Peacock, S. Hatton Survey, 3½ miles northeast of Murchison and 2,100 ft. from the south and west lines of a 99-acre tract. Materials are being moved in for immediate work on both tests.

PATEL DRILLERS, Inc., opened a new gas field, 5 miles northwest of the Randado field, Jim Hogg County, Texas, as the company's No. 1 Gutierrez tested dry gas when tested through perforated casing at 3,124-27 ft. The well is shut in, and another test may be made at approximately 2,800 ft. where a recent drill-stem test showed favorable indications.

T. A. CARLTON is scheduled to move a rotary to the Hastings field, Brazoria County, Texas, for the contractor's No. 1 Buvens, which is scheduled to be drilled to a depth of 6,100 ft.

JOHN H. BLAFFER is moving a rotary to the east flank of the Thompson field, Fort Bend County, Texas, for his No. 7 J. H. P. Davis, a 9,000-ft. test which will be drilled in search of Vicksburg production, the same formation from which prolific production has been developed on the north flank of the structure.

SMITH & McDANNALD completed Standard Oil Co. of Kansas' No. 1 Martens in the Tomball field as a producer. The well was drilled to the Wilcox sand at 8,889 ft., and the hole was plugged back; the well was completed through perforated casing in the Cockfield at 5,562-85 ft.

CROSBY Drilling Co. is moving a rotary to the Anse La Butte field, St. Martin Parish, coastal Louisiana, for the company's No. 1 Republic Production Co. in Section 121-9s-5e.

HOUSTON & THOMPSON are preparing to test Bel Oil Co.'s No. 2 Bel estate at the North Elton field, Allen Parish, coastal Louisiana. The hole is bottomed at 7,654 ft., and 7-in. casing was cemented preparatory to completing as a gasser. Another rig is running in the Eola field, Avoyelles Parish, for Gulf Refining Co.

ALLEN & MORRIS, who opened a new field in the Seadrift area, Calhoun County, Texas, have started drilling operations on a second well for Coronado Corp. In the La Rosa field, Refugio County, one operation is reported for the same company while another rotary is running for

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Contractors

Shield Oil Co. In the northwest extension area of the Fagan field, Refugio County, a production test is being made on Norsworthy Production Co.'s No. 2 Fagan, while in the Bruni field, Webb County, a depth of 8,100 ft. has been reached in American Liberty Oil Co.'s No. 8 Bruni.

NOBLE Drilling Co. is drilling below 7,300 ft. on two important wells located in the Alta Loma field, Galveston County, Texas, for Stanolind Oil & Gas Co. A string of 9⅝-in. casing was cemented at 8,237 ft. in No. 2 J. A. Hulen, while No. 3 J. A. Hulen, which is being drilled directionally as a relief well to the discovery well, a blowout, is drilling below 7,400 ft.

FALCON-SEABOARD Drilling Co. is coring below 10,100 ft. in the company's No. 1 Folse, a wildcat located in Iberville Parish, Louisiana, while in the Pearsall field, Frio County, Texas, drilling was started on the company's No. 1 Halff & Oppenheimer located in the J. H. Gibson Survey 16.

RED IRON Drilling Co., Shreveport, La., have contracted to drill J. P. Evans' No. 1 Oliver, a Neshoba County, Mississippi, wildcat.

IRON Drilling Co., Tulsa, is looking for a new pool in northwestern Barber County, Kansas, at Transwestern Oil Co.'s No. 1 Buck, S½ SW NE Section 35-30-14w, about 3 miles northwest of the Lake City pool. Derrick has been completed and contractor was preparing to spud.

CRON & GRACEY Drilling Corp. are drilling below 5,600 ft. on Shell Oil Co., Inc.'s No. 1 State, a projected deep test located in the Bayou des Illettes area in Jefferson Parish, coastal Louisiana. This is a submerged location and the well is being drilled with the rotary mounted on a barge.

FAIN Drilling Co., Oklahoma City, Okla., has been awarded contract for the working over of the Harper & Turner, Inc.'s No. 1 Littlepage in SW NW NW Section 35-12-3w in the Oklahoma City field. At a total depth of 6,532 ft. the hole and casing was damaged by a nitroglycerin shot about 2 months ago and work was suspended. At that time the well was being drilled by Champlin Refining Co. and others, from whom Harper & Turner acquired it. Old pipe has been pulled and hole plugged back to 3,500 ft. and at the week end new hole was being drilled below 5,790 ft.

REESE Drilling Co., of Tulsa, and others have opened a new oil pool at their No. 1 Berryman in NW SW SW Section 36-11-8e, 8 miles southwest of Okemah and east of the Cromwell pool in Okfuskee County, Oklahoma. The wildcat had the Cromwell sand at 3,458-76 ft., total depth, and when plug was drilled the well flowed at the rate of about 20 bbl. per hour for 30 minutes. The well was estimated as being capable of producing about 30 to 40 bbl. per hour through tubing.

Crew of the Taylor Drilling Co., Centralia, Ill., on the North American Oil Co.'s No. 1 Graves, Section 15-6s-6e, Hamilton County wildcat: R. L. Atkins, backupman; Okey Stoner, piperacker; R. J. Nelson, catheadman; J. K. Long, drilling superintendent; Claude Bowman, derrickman; H. A. Stolsenau, repairman, and E. Hanks, driller

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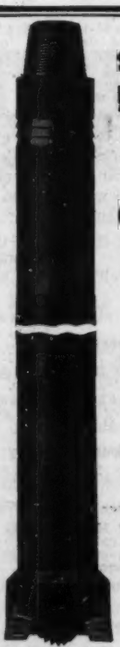

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Cole Creek Gets Second Well; Start Sundance Test in Colo.

By
T. R. INGRAM

DENVER, Colo., July 22.—C. D. Cunningham and associates are starting a well on the Round Butte structure in Larimer County in northern Colorado near the Wyoming line. The new well will have for its objective the Sundance sand which is productive of oil in the Lance Creek field and other Wyoming fields. Scattered tests in this part of Colorado have reported oil saturation in the Sundance sand.

General Petroleum Corp. has completed its second Shannon sand well at Cole Creek in Niobrara County, Wyoming, for an initial production of 250 bbl. of oil and has started its third well. The development of this new field is now expected to progress rapidly.

The Lance Creek field in Niobrara County, Wyoming, reported two completions for the week. Continental Oil, 11 Rohlff flowed 738 bbl. of oil in 24 hours after treatment with 1,000 gal. of acid in Leo sand at 5,272-94 ft. and Holly Development Co.-A. B. Cobb, 6 Novick flowed naturally at the rate of 10 bbl. of oil an hour from the same sand logged at 5,310-42 ft.

In northern Montana Santa Rita Oil & Gas, 1 Government, in the Cut Bank field, swabbed 440 bbl. of oil the first 24 hours from the lower Cut Bank at 2,905-20 ft.

COLORADO

El Paso County

F. F. Hintze, 1 State ..... CEL SE SE 16-11s-60w
Drlg. below 1,550 ft.

Huerfano County

Ira E. Miller, 1 Hamilton .... SE SE NW 20-29s-67w
Drlg. below 1,700 ft.
I. E. Sideman-White et al 1 Martinez SW NE 33-26s-67w
Drlg. at unreported depth in lower Pierre; hard bands of limestone at 6 to 8-ft. intervals with S.O.&G.

Larimer County

C. D. Cunningham and associates have started a well on state land on the Round Butte structure in northern Larimer County, Colorado, which has for its objective the Sundance sand at an approximate depth of 1,900 ft. The structure was tested in 1936 by the California Co., operating subsidiary of the Standard Oil Co. of California. This well was located about ½ mile east of the Cunningham location and reported an encouraging showing of oil in broken sand at 1,916-26 ft.

C. D. Cunningham et al, 2 State-Warren .....
CWL SE NW 6-11n-68w
Spudding; (first report).
Continental, 2 Larson.....SE NW SW 19-8n-68w
Cleaned out to 4,652 ft.; fsg. for bailer at 4,500 ft.; total depth 4,660 ft., sandy shale.
Ed Shogren et al, 1 Frazier.....SE SE 31-4n-69w
S.D. 1,127 ft.; T. Hyg. 1,123 ft.; good S.O. followed by wtr.; may go to Muddy sd.

Las Animas County

Hulme-Johnston-Allison, 1 Azar, SE SE NW 27-34s-58w
S.D. 2,300 ft. to renew leases; will res.

Lincoln County

Consolidated S. & M., 1 Hancock, NE NE SW 7-17s-52w
Drlg. 3,350 ft. with cable tools.

Logan County

West Plains, 1 Sheldon.....SE NW SW 3-10n-55w
Drlg. at 1,840 ft.

Moffat County

Texas, 2 Wick.....Lot 9, 10-4n-91w
T.D. 3,935 ft.; R.U. to D.D.; fsg. for swab.
Mountain Fuel Supply, 2-A Kuykendall .....
SW NW NW 23-12n-100w
Cored saturated second sand 2,312-15 ft.; running Halliburton tester; first sand 2,070-2,152 ft.
Steamboat Springs Synd., 1 Sutton NE NE SW 1-5n-96w
Shut down at 2,252 ft. in Morrison sand with hole full of water.

Ouray County

Ridgway Pet. Synd., 1 Bennett .... NE SE 2-45n-8w
Drlg. 489 ft. in limy sh.; S.O.&G. at 374-489 ft.; 8-in. cmtd. at 20 ft.

Park County

South Park Oil, 1 Lemar.....NE NE SE 34-11s-75w
Drilling in fine hard sharp sand at 7,368 ft.

Rio Blanco County

Buford Oil, 1 Govt. .....SW SW 16-1n-91w
Straightreaming at 3,706 ft.; total depth 4,160 ft.

Texas-California, 4 Unit.....NW NW NW 2-2n-94w
Drlg. 415 ft.
W. L. W. Royalty, 1 Rector.....SE 34-2n-102w
S.D. temp. at 1,443 ft.
Raven O. & R., 30 .....SE NW NE 31-2n-102w
R.U.C.T.

Routt County

Craig & Moore, 1-X Erwin .....SW NE 33-7n-85w
Drilling in red beds at 2,410 ft.

MONTANA

Carbon County

Continental, 1 Prigge .....SE SE SE 33-9s-25e
Ran 284 ft. of 10¾-in. csg. cemented with 125 sacks; W.O.C.; T.D. 298 ft.
R. C. Tarrant, 2 McKay.....SE NW 4-6s-18e
Shut down at 3,057 ft. for rotary.

Choteau County

Security Pet., 1 Johnson.....NE NE 23-26n-3e
Drlg. 2,248 ft.; 6⅝-in. at 2,197 ft.

Fallon County

Montana-Dakota Utilities, 143 .... SE NW NE 4-6n-60e
Drlg. 995 ft.; cemented 7-in. csg. at 901 ft. with 50 sacks.

Fergus County

Tony Co., 1 .....CNL NE SW 36-22n-17e
Waiting on csg. at 207 ft.
E. & M. O. & G., 4 ..... SW SE SW 34-33n-18e
Drlg. at 520 ft.; cemented 7-in. csg. at 372 ft. with 5 sacks.

Glacier County

Cut Bank had one completion in Santa Rita, 3 Government, NE SE NW 7-32n-5w, which swabbed 440 bbl. of oil the first 24 hours from lower Cut Bank sand at 2,905-20 ft., total depth. The Sunburst at 2,855-65 ft. was dry.

A. R. Pardue, 4 Tribal-171.....SE SE SE 7-32n-5w
Drlg. at 1,675 ft.
Glacier Prod., 1 Dahlquist unit ..... C 12-34n-5w
Drlg. at 2,190 ft.
Glacier Prod., 3 Hall .....NW SE 35-36n-6w
Building rig.
Texas, 7 Hinkle .....NE NW NE 2-34n-6w
Drlg. at 370 ft.
Texas, 3 Bonnett ..... NE SE 8-32n-5w
Loc.
Texas, 6 State ..... NW SW 16-32n-5w
Drlg. at 735 ft.; cemented 10¾-in. csg. at 611 ft. with 50 sacks; top Colo. 575 ft.
Texas, 3 Unit 11 .....W½ NW SW 11-35n-6w
Drlg. at 1,930 ft.
A. B. Cobb, 1 Teterud .....NE NE NE 24-37n-5w
Drlg. at 1,760 ft.; set 8¼-in. csg. at 1,740 ft.
Santa Rita O. & G., 11 Tribal.....NE cor. 16-35n-6w
Drlg. at 2,215 ft.
Steele Creek Prod., 3 Carmen ...SE SE NW 19-34n-5w
Drlg. at 1,775 ft.
Montana Headlight Oil 6 Britton NW SW SE 11-34n-6w
Drlg. at 1,850 ft.
Glacier Prod., 1 Coburn unit.. CSL NW NE 9-33n-5w
Drlg. at 2,800 ft.; well gaged 11,300,000 cu. ft. of gas.
R. C. Tarrant, 3 Hope ..... NE 18-34n-5w
R.U.
R. C. Tarrant, 1 Butler ..... CEL NW SE 15-34n-6w
Fsg. for tools at 2,987 ft.; 200 ft. oil in hole.
Cobb-Reagan, 4 Jackson.....SW SW SE 5-32n-6w
R.U.R.

Hill County

William Hanlon, 1 Govt. .....SW NE 19-37n-15e
Spd. and S.D.

Phillips County

Montana-Dakota Utilities, 601... C SW SW 26-33n-32e
Spd. and skid rig upon running into boulders.

Stillwater County

Texas, 1 Unit .....SE NW 10-4s-19e
Rig up; moving in equipment.

Toole County

Kevin-Sunburst had two completions. Coolidge & Coolidge, 7-A State, NW SW NW 36-36n-2w, pumped 40 bbl. of oil per day from Sunburst sand at 1,503-42 ft., total depth, after a 30-qt. shot. L. J. Yealy, 14 I. Shaw, NW SW NE 35-36n-2w, is pumping 75 bbl. oil daily from Sunburst sand at 1,569-1,603 ft. after a 40-qt. shot, total depth 1,605 ft. There were two new operations.

Enfield, 3 Zachor ..... C NW NW 20-35n-1w
Spudding at 60 ft.; (first report).
Big West Oil, 17 Dahlquist SE NW NE 28-35n-3w
Drlg. at 500 ft.; (first report).
Coolidge & Coolidge, 2 Midland Realty .....
NW SE SW 25-36n-2w
Drlg. at 1,230 ft.

Montana-Dakota Utilities, 1 Churchill SW NE 19-33n-2e
Black Label Oil, 11 State.....NE NW NE 16-35n-2w
Running 7-in. csg. to set at 1,550 ft.
Silver Oils, 3 Haskins.....NE SW SW 25-36n-2w
Running 7-in. csg.; will underream through cave; T.D. 1,500 ft.
Lion Oil, 5 Haugen.....NW SE SE 11-35n-3w
Drlg. 1,380 ft.
A. E. Crumley & Son, 20 Fryberger.....
SW SW NE 24-35n-3w
Drlg. at 420 ft.
Texas, 13 Bruins.....W½ W½ SE 9-35n-2w
Set 6⅝-in. csg. 1,575 ft., T.D.
Coolidge & Coolidge, 8-A State NW SE NW 36-36n-2w
R.U.
Texas Pacific C. & O., 11 Howling SE SE NE 9-35n-2w
Drlg. at 1,220 ft.
Morton O. & R., 9 Morton.... NW NW SE 13-34n-2w
Drlg. at 1,100 ft.
Nepstad-Montgomery-Fargher, 3 Haugen-1 .....
SW SW SE 2-35n-3w
Standing with 7-in. csg. cemented at 1,670 ft. with 6 sacks.
Superior Pet., 13 Aronow.....SE NW SW 12-35n-3w
Ellis-Madison contact dry at 1,782 ft.; drlg. ahead in lime.
Twin Falls Oil, 1-A Govt. .....NW NW NW 28-35n-3w
S.D. 1,732 ft.
Wm. Hanlon et al, 1 Merton Mortgage SW SE 6-37n-1w
Cleaning out to resume at 2,010 ft.
Prevol & Shay, 1 Govt. ..... NE NW SW 11-35n-3w
Spudding at 80 ft.

NORTHWEST NEW MEXICO

McKinley County

Teague, Greer, 1 Santa Fe.....33-18n-10w
S.D. 920 ft., for csg.
Petroleum Producers, 8 State.....SE SW 36-18n-9w
T.D. 1,578 ft.; tstg.

Rio Arriba County

I. M. Hughes-Continental, 1 Jicarilla-Apache, CSL SE NE 22-31n-1w, on the Dulce structure, was abandoned in Dakota sand at 2,346 ft. with 1,200 ft. of water in the hole; top of the Dakota 2,340 ft.

San Juan County

Continental, 108 Rattlesnake... C NE NE 11-29n-19w
Drlg. shale 620 ft.; (first report).
Claude Carroll, 1 Corneil.....SW NE 11-29n-12w
Drlg. 1,010 ft.
Kutz, 1 Govt. .....NW NW 28-28n-10w
Drlg. at 1,500 ft.

San Miguel County

Southwest Drlg., 1 Conchas.....NW NE 34-17n-21e
Drlg. at 2,350 ft. after recmtg. for water shutoff.

UTAH

Box Elder County

Utah Dutchess, 1 .....NW cor. 26-14n-8w
Drlg. 400 ft.

Daggett County

Mountain Fuel Supply, 5 Murphy SW NE SW 15-3n-24e
Building rig.

Grand County

Reeder Corp., 1 State.....NE NE NE 16-22s-19e
T.D. 1,060 ft.; fsg.

Summit County

Longwell Pet., 1 .....SE SW SE 35-3n-5e
T.D. 3,300 ft. in sd.; U.R. 4¾-in. to bttm.

WYOMING

Albany County

Metzger & Deter, 1 Nelson.....SE SE SE 12-14n-75w
Shut down at 900 ft.
Ohio, 1 Coughlin .....SW NE NW 26-16n-77w
Running tbg. for production test at 3,760 ft.; T.D. 4,345 ft.

Big Horn County

Ohio, 3 Davis .....NW SW NW 34-56n-97w
Drlg. red beds 2,933 ft.
McDonald & Curtis, 1 Orchard....SE NW 24-51n-93w
Shut down at 535 ft.; (correction).
Frank S. Scott, 1 Robertson..... SE SE SE 6-54n-93w
Underreaming at 700 ft. to set 8¼-in. csg. on bttm. 727 ft.

Carbon County

Sinclair-Wyoming, 14 Unit.....NW SW NE 7-26n-89w
Cmtd. 7-in. csg. at 5,742 ft. with 200 sacks; total depth 5,746 ft.; top Tensleep 5,740 ft.
Ohio, 12 State.....CWL NE 34-20n-78w
M.I. rotary.
Albert Dev. Synd., 1 Boeke .....SW NW 18-25n-79w
Drlg. at 1,366 ft.
Tri-State O. & G., 17.....NW SE NW 20-21n-80w
T.D. 630 ft.; U.R. 6¼-in. to bttm.

Converse County

U. & I. Synd., 1 Beaver.....SE NW 29-35n-68w
Drlg. at 448 ft.

Crook County

Union, 1 Casey.....SE NE NW 3-57n-62w
Abandoned at 4,243 ft. in Deadwood formation.

Fremont County

Sinclair-Wyoming, 2-A Muskrat NW SE SW 34-34n-92w
B.R.
Logue Trust, 1 Wisner.....NE SW 8-33n-98w
Government Draw dist.; drlg. Cody sh. 802 ft.
Pilot Oil, 6 Enos.....SE SE NE 21-3n-1w
Drlg. at 430 ft.

Hot Springs County

Boybell Oil, 2 Kyne.....NW SE SW 22-43n-92w
P.B. to 152 ft. from total depth 804 ft.; pumped approximately 400 bbl. water per day.

Lincoln County

H. C. Harris et al, 1 Govt. ...SE NW NW 23-21n-117w
Drlg. 3,028 ft.
Fontenelle Dev., 1 Pomroy.....NE SW 5-24n-113w
Drlg. 1,158 ft.

Natrona County

General Petroleum, 31-21-G, NW NE NW 21-35n-77w. Cole Creek field, has been completed for 250 bbl. of oil per day, pumping, from Shannon sand at 4,529-69 ft., total depth.

Stanolind, 8 Unit.....NW NE 26-40n-79w
T.D. 1,510 ft.; set whpstk. at 1,148 ft. to drill out of old hole.
General, 51-21-G .....NW NW NE 21-35n-77w
Drlg. at 3,700 ft.
Lewis Gebhart, 1 Govt. .....NW NE SE 10-39n-78w
S.D. 1,327 ft.; C.D.
Royal Oil, 1 .....SW SW SW 26-35n-80w
Drlg. at 1,050 ft.

Niobrara County

Lance Creek had two completions. Continental, 11 Otto Rohlff, SW NE SE 31-36n-65w, flowed 738 bbl. of oil in 24 hours from Leo sand at 5,272-94 ft., total depth, after treatment with 1,000 gal. of acid. Holly Development-A. B. Cobb, 6 Novick, SE NE NW 6-35n-65w, was completed for 10 bbl. of oil per hour flowing naturally from Leo pay at 5,310-42 ft., total depth.

Continental, 12 Rohlff.....SW NW SW 32-36n-65w
Waiting on rig.
Continental, 6 Apex O.P.C.-3....SE NE NE 34-36n-65w
Building rig.
Minnelusa-MacKinnie, 6 Thompson .....
NE NW SE 7-35n-65w
Drlg. 5,432 ft.
Continental, 8 Joss .....SW NW NE 6-35n-65w
Drlg. shale at 1,538 ft.
Ohio, 15 Lamb, Acct. 1 .....NW SE SE 32-36n-65w
Cored first Leo sand (saturation) 5,055-84 ft. and second Leo 5,210-25 ft.
Continental, 19 Tom Bell.... NW NE SE 33-36n-65w
Drlg. plug on 7-in. csg. cmtd. 5,294 ft.; total depth 5,322 ft.
Argo, 13-A Elliott .....SE NE NW 5-35n-65w
Flowed 55 bbl. oil per hour from lower Leo; perforated second Leo 5,202-52 ft. and 5,270-80 ft.; ran tub.; prep. to swab.
Ohio, 16 Lamb-1 .....NW NE NE 5-35n-65w
Drlg. lime at 5,586 ft.
Ohio, 16 Putnam .....SW SW NW 4-35n-65w
T.D. 5,529 ft.; P.B. to 5,457 ft.; tstd.; will P.B. again.
H. D. Moore, 1 Berggren.....SE NW 23-35n-63w
Shut down at 2,676 ft.
Ohio, 7 Rohlff .....NW NE SE 32-36n-65w
Drlg. lime 4,783 ft.; top Converse 4,558 ft.
Continental, 7-A Dielman .....NW NE NW 8-35n-65w
Drlg. lime and anhydrite at 5,243 ft.

Park County

V. M. Kirk, 3 Govt. .....NW NW SW 24-58n-98w
Cmtd. 13-in. csg. on bttm. 305 ft.
Yale Pet., 1-B Frisby.....SW NE NE 31-52n-100w
Drlg. at 2,055 ft.
Kinney-Coastal, 4 Govt. ..... SE NW 13-56n-98w
Garland field. M.I.
Resolute, 2 State .....SW SW 16-57n-101w
Drlg. at 9,363 ft.

Platte County

Dividend Oil & Refineries, 1 Johnson .....
CSL NW SW 17-24n-66w
Drlg. at 3,546 ft., shale.

Sublette County

Texas, 1-H .....CWL NW SW 27-27n-113w
Coring at 900 ft.
North La Barge Oil, 4 Govt. ..CSL SE NE 28-27n-113w
Underreaming at 1,056 ft.; total depth 1,086 ft.
Charles Lackey et al, 1 .....NE NE SW 33-27n-113w
S.D. 105 ft.
Worth Garretson et al, 1 .....NE NW SE 28-27n-113w
Drlg. at 1,474 ft.

Sweetwater County

Union Gas, 1 Hummer.....NW NW NE 6-17n-103w
Drlg. at 900 ft.
Mountain Fuel Supply 1 Murphy SE SE SE 27-17n-104w
S.D. at 4,156 ft.
Sinclair-Wyoming, 94-A .....NW NW NE 10-26n-90w
Drlg. 1,136 ft.
Gus Pongratz et al, 1 Clark.....NW NE 22-19n-104w
Drlg. at 3,010 ft.; top Frontier 2,626 ft.; saturation reported 2,734-49 ft.
Red Desert Corp., 1 Aspden..NW SW NW 34-18n-103w
Drlg. 260 ft.
Vermillion Oil, 2 Govt. .....SW SW SW 7-12n-99w
S.D. 3,002 ft.

Uinta County

Elynor Oil, 1 ..... CEL SE SE 6-18n-116w
Prep. to test oil show 485 ft.

Spring Valley Pet., 13 ..... CSL SE SE 22-15n-117w
Drlg. below 2,000 ft.

Washakie County

Paul Boether, 1 Govt. ..... SW SW NW 4-47n-90w
S.D. 2,467 ft. in Therm. sh.; cmtd. 7-in. at 2,317 ft.

Weston County

Charles Stough, 12 ..... CWL SW NW 4-46n-63w
Drlg. 150 ft.

Pierre La Fleishe, 1 Dober . NE NE NE 21-45n-63w
6 mi. S of Osage field. Spd. to 150 ft. and set 10¾-in.
Bruce C. Teeter, 1 State.....SW NE 36-32n-61w
T.D. 2,372 ft.; prep. to run csg. and test Sundance sd. at 982-1,072 ft.
John Brorphy, 1 Hansen .... NW NE NW 13-44n-63w
Drlg. below 300 ft.
H. D. Wiltse, 19 ..... C NW NW 17-46n-63w
Comp. at 530 ft. for 3 bbl. of oil per day.
Wheedon Oil, 6 State ..... CSL NW NE 16-46n-63w
Drlg. at 150 ft.; (first report).

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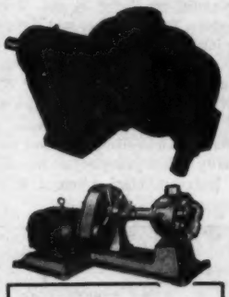

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Wildcat in Dickinson County Has Showing in Chat Pay

By
DAL DALRYMPLE

The Geuda Springs pool was extended, a second gas well was drilled in the McLouth area, a Dickinson wildcat gave promise of opening an oil pool, and a gas discovery well in Cowley County was completed, to provide features of the week in Kansas fields.

E. B. Shawver and associates' No. 1-A Bahruth, NE SE NE Section 8-34-3e, extended the Geuda Springs pool in Cowley County ¼ mile eastward. It found Mississippi chat at 3,286 ft., was drilled with cable tools to 3,312 ft. and oil rose in the hole at an estimated rate of 25 to 30 bbl. daily, with about 3 bbl. of water. Tubing was run preparatory to making a pumping test. Drilled with rotary tools to top of the Mississippi zone, it missed Bartlesville sand.

Dan McLaughlin and others' No. 3 McLaughlin, NE SW NE Section 4-10-20, in the McLouth oil and gas field, Jefferson County, Kansas, sector of the Forest City basin, was estimated good for 16,000,000 cu. ft. of gas daily from gas pay in Bartlesville sand topped at 1,391 ft., total depth 1,400 ft. It is ¼ mile east of the gas discovery well drilled by the same operators and completed last March for an estimated 8,000,000 cu. ft. of gas. A small oil producer also has been completed in the area.

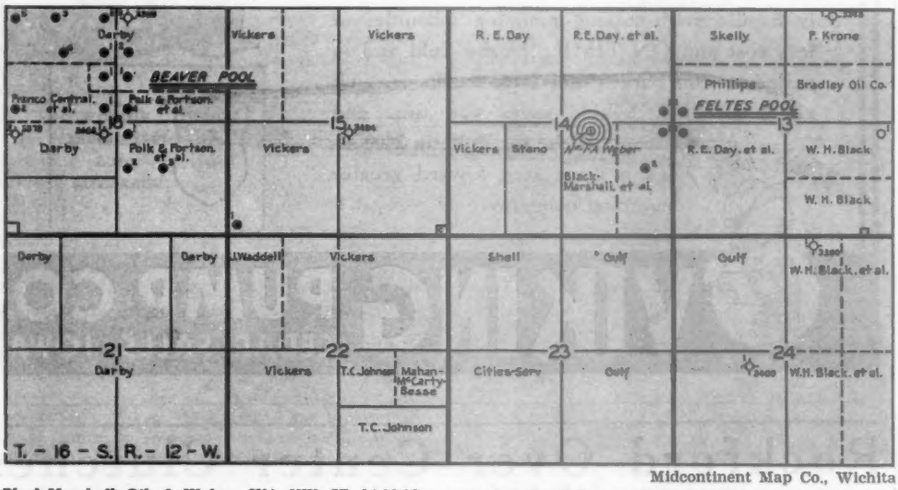
Discovery of the first oil pool in Dickinson County appeared imminent at Midland Oil Co. and R. L. Mendenhall's No. 1 Haines, SE SW SW Section 23-16-4e, in the southeastern part of the county and 3 miles north of the Lost Springs pool in Marion County. It topped Mississippi chat at 2,329 ft., set 5-in. casing there, had first oil showing at 2,334-37 ft., gas at 2,337-40 ft., oil at 2,368-72 ft., more pay at 2,372-75 ft., total depth 2,379 ft. Oil rose 500 ft. in the hole in 2 days. It also was reported making two bailers of water an hour, but this was believed coming from behind the casing and not from bottom-hole formation. Field reports indicated it would be completed as a small producer. The Midland company has a large block of acreage in the area, the structure extending north of the town of Herington.

Cities Service Oil Co.'s No. 1 Ray, NE NW SE Section 32-5s-20w, wildcat in southwestern Phillips County, was bottomed at 3,603 ft., with oil showing in Arbuckle lime. It was reported 5-in. casing was cemented, but direct information was not given out.

Mitchell Drilling Co.'s No. 1 Veverka, S½ SE SE Section 21-8-19w, wildcat near the abandoned Webster pool in Rooks County, topped Arbuckle lime at 3,428 ft., had some saturation at 3,429-34 ft., more pay at 3,434-35 ft., total depth, and oil rose 725 ft. in the hole in 9 hours. Five-inch casing was cemented at 3,428 ft. It was reported bailing 3 bbl. of 20-gravity oil an hour.

A second and deeper pay apparently has been uncovered in the Bitikofer pool, McPherson County, at Aladdin Oil Co.'s No. 1 Young, S½ SE SW Section 36-19-1w, north offset to the discovery well. It topped Viola lime at 3,365 ft., drilled in 1 ft. and had oil showing in the cuttings. The crew was running 5½-in. casing to test the lime. The discovery well produces from the chat. Location of the No. 1 Young is ½ mile east and one location north of the discovery well in the abandoned Wenger pool, which had initial yield of 417 bbl. of oil from Viola lime, but was abandoned when water intruded after an unsatisfactory acid job.

The Feltes pool, Barton County, was extended ⅝ mile westward at Black-Marshall Oil Co.'s No. 1-A Weber, N½ NW SE Section 14-16-12, which was showing oil in Arbuckle lime at 3,378-80 ft., total depth.



Midcontinent Map Co., Wichita

Black-Marshall Oil, 3 Weber, N½ NW SE 14-16-12w, extended the Feltes pool, Barton County, ⅝ mile westward. It had oil showing in Arbuckle lime at 3,378-80 ft., total depth. The map shows the Feltes pool and a portion of the Beaver pool

COMPLETIONS, NEW WORK

Wildcats

Barton County: Bradley Oil Co., 1 Dolechek, SE SE NE 13-16-11w, about 2 miles west of Stoltenberg pool; rotary rig.
Earl Wakefield and others, 1 Staatz, S½ SE SW 23-17-11w, northwest edge of Bloomer field; ponds.
Barber County: Sinclair Prairie, 1 Binning, S½ SE SW 26-32-13w. Arbuckle 4,975 ft., total depth 5,083 ft., dry.
Cowley County: Trees Oil, 1 Orr, NW NE NW 17-30-4. Arbuckle 3,261 ft., total depth 3,270 ft., dry.
W. M. McKnab and others, 1 Lemert, CWL NW SE 11-34-4, about 4 miles east of Arkansas City gas field. Mississippi 3,078 ft., Arbuckle 3,568-89 ft., total depth, plugged back to 3,100 ft., gaged 3,000,000 cu. ft. of gas, with 1,200 lb. rock pressure.
Ellsworth County: Cities Service Oil, 1 Essick, NE NE NE 25-16-8w, about 8 miles southeast of town of Ellsworth, moving in material.
Duwe & Farris and others, 1 Williams, N½ NW SE 23-17-11w, between Edwards and Lorraine pools; ponds.
Pratt County: Marylyn Oil and others, 1 Jackson, CEL NE NW 1-27-13w, about 2 miles northeast of Iuka pool, location.
Rooks County: Earl Wakerfield and Central Petroleum, 1 Diehle, N½ NW NW 4-9-17w. Arbuckle 3,461-90 ft., total depth, dry.
Russell County: Gussman and others, 1 Mudd, W½ NW NE 16-15-15w. Arbuckle 3,300 ft., total depth 3,343 ft., dry.
Stafford County: Seaney, Clampitt & Carnihan, 1 Boyd, W½ SW SW 4-21-14w, northwestern part of county, location.
Shell, 1 Bean, SE SE SW 21-23-12w, about 4 miles southwest of Richardson pool, location.

Barber County

Whelan pool: Lario Oil & Gas, 2 Nuckolls, NE NE SE 30-31-11w. Total depth 4,315 ft., in Mississippi chat; potential 3,000 bbl., calculated.

Barton County

Krier pool: Springer and others, 1 Oeser, E½ NE SW 30-16-11w. Total depth 3,285 ft., initial yield 50 bbl. daily from Lansing lime.
Heizer area: Thurman Hill, trustee, 1 Miller, N½ SE SE NE 21-19-14w. Total depth 3,543 ft., dry.
New work: Phillips Petroleum, 7 Bitter, CEL SE NE 6-16-13w. Location.
Shell, 2-C Bitter, CEL SW 5-16-13w, location; same company, 4-A Schneider, SE 12-16-14w, location.

Cowley County

Wilson area: J. E. Abbott and Atlantic, 1 Meyer, NE NW SE 9-33-6, about ½ mile southeast of Wilson pool, location, cable-tool test.

Ellis County

Bemis field: Winkler-Koch Engineering, 2-A Hadley, SW SW NW 21-11-17w. Total depth 3,416 ft. in Arbuckle, potential 2,261 ft.
Ryan Consolidated Oil Corp., 6-C Bemis, NW NE SW 21-11-17w. Total depth 3,409 ft. in Arbuckle lime, acidized, potential 3,000 bbl., calculated.
Blue Hill pool: J. C. Shaffer, 2 Oswald, NW NW SE 11-12-16w. Total depth 3,110 ft., potential 221 bbl., from Lansing lime.
Burnett field: Dickey Oil, 4 Kollman, CSL NW SE 18-11-17w. Total depth 3,400 ft. in Arbuckle lime, potential 68 bbl., acidized.
Central Petroleum, 3 Hadley, NW NE SW 12-11-18w. Total depth 3,363 ft., potential 3,000 bbl., calculated.

Estimated Daily Production

Estimated daily production for Kansas for the week ended July 20, and for the preceding week, was as follows:

	Barrels	
	July 20	July 13
Oxford City	750	750
Burrton	7,650	7,550
Ritz-Canton	3,600	3,550
Graber	2,200	2,600
Hollow-Nikkel	1,650	1,550
Lerado	600	800
Voshell	1,700	1,700
Wellington	1,750	1,700
Ellsworth County:		
Lorraine	1,700	1,600
Other pools	3,245	2,760
Rice-Barton counties:		
Bloomer	4,650	3,450
Chase	4,850	4,450
Geneseo	2,600	4,150
Raymond	750	900
Silica	13,100	10,700
Keesling	450	450
Wherry	3,450	3,450
Miscellaneous Rice	4,355	3,045
Miscellaneous Barton	10,160	8,370
Trapp district	15,150	11,900
Balance Russell County	19,800	19,850
Sedgwick County	3,300	3,300
Ellis County:		
Bemis	10,450	9,800
Miscellaneous	11,005	10,125
Kingman County	980	880
Stafford County	11,165	9,410
Greenwood County	8,250	8,250
Eldorado	7,400	7,400
Other fields	33,240	33,760
Total Kansas	189,950	178,200

Ellsworth County

Ehler pool: Lauck & Moncrief, 2 Ehler, NE NE SE 35-16-10w. Total depth 3,296 ft. in Arbuckle, potential 52 bbl.
Stoltenberg pool: Palm-King Oil, 1-B Stoltenberg, SE SE NW 27-16-10w. Total depth 3,273 ft. in Arbuckle, potential 213 bbl.
Wilkins pool: Cities Service, 2-B Mollhagen, E½ SE 30-17-9w. Total depth 3,242 ft. in Arbuckle, potential 372 bbl.
Lorraine area: Tobin & Ault, 1 well, SW SW SW 14-17-9w, about ⅝ mile northwest of Lorraine pool, location.

Grant County

Hugoton field: United Production, 1 King, NE NE SW 22-29-35w. Total depth 2,728 ft., gaged 5,000,000 cu. ft. of gas.

Johnson County

Kaths pool: F. J. Kasper, trustee, 2 Hammer, NW cor. 33-13-22. Dry.
Sagamore Oil & Gas and F. J. Kasper, trustee, 1 Keegan, C SW NW 3-14-22, gas estimated at 175,000 to 200,000 cu. ft., from lower Squirrel pay.

McPherson County

Bornholdt field: Bradley Brothers, 3 Mattson, S½ NE SW 19-20-5w. Moving in rotary tools.
Ritz-Canton field: Grossman and others, 2 Wiles, NW SW NE 25-19-1w. Moved in machine.

Pratt County

Cunningham field: Skelly, 1 Armsted, CNL S½ 2-28-11w. Completed for 24,500,000 cu. ft. of gas.

Cities Service, 1 Lehring, SW SW SW 19-27-11w, drilling in new hole after losing original hole below 600 ft.

Rush County

Laton pool: Tom C. Johnson, 1 Luhman, CSL SE NW 10-9-16w. Total depth 3,220 ft. in Lansing, acidized, potential 2,350 bbl.

Otis field: Power Oil and others, 1 Schlegel, E½ SE NE 34-17-16w. Total depth 3,661 ft., dry.

Russell County

Big Creek pool: Armer and others, 2-A Hall, SE SE SW 36-14-15w. Total depth 3,221 ft. in Arbuckle, potential 83 bbl.

Fairport field: Liggett and others, 4 Durham, NE NE NE 20-11-15w. Total depth 3,326 ft. in Lansing, potential 121 bbl.

Trapp field: Carter Oil, 5 Josephine, CNL NE SE 7-15-12w. Total depth 3,023 ft. in Lansing lime, acidized, potential 72 bbl.

Stafford County

South Snider pool: Champlin, 1-B Smith, NE NE NE 17-21-11w. Total depth 3,390 ft. in Simpson, potential 3,000 bbl., calculated.

Zenith field: Shell, 1 Brown, SW NW SW 2-24-11w. Total depth 3,763 ft. in Misener sand, temporary potential 47 bbl.

Stanolind, 2 Richardson, CEL SE NW 10-24-11w. Location.

Stanolind, 2-A Ferris, CEL NE SE 15-24-11w. Location.

Drilling in First Half of Year Approaches All-Time High

(Continued from Page 77)

Young counties and 94 in Shackelford. The west central district did not receive so active a play as north central area, except in Jones County, where there were 95 wells drilled. The 14 discoveries credited to the area during the half year presaged a busy second half year during which the play will probably go far southeast of its present limits.

Permian Basin and Panhandle

Year in and year out the Permian basin keeps plugging along building up ever larger reserves and the first half of 1940 was no exception. In West Texas 1,022 wells were completed, of which only 62 were dry. Over half of these were in Ector, Yoakum and Gaines counties where the Goldsmith, Foster, North Cowden, Johnson, and Wasson-Denver fields are being pushed out. At the same time, the Slaughter and Duggan fields are being linked which will give Hockley and Cochran counties considerable activity in the near future. The Todd discovery promises a revival of activity for Crockett County, although this may be slow in developing. In the New Mexico sector completions increased by nearly a third to 360, with both Lea and Eddy counties sharing in the increase. Much development must still be done before this area is drilled up. In the Panhandle, completions increased from 161 to 277 as more inside locations were drilled. Gas wells remained at about the same figure, 41 against 38, while dry holes dropped from 19 to 10.

Rocky Mountain States

Drilling increased slightly in the Rocky Mountain States, particularly in the Lance Creek and Cut Bank fields where markets improved somewhat. Wildcatting remained practically unchanged from the previous year as operators concentrated on proven areas with higher than average initials giving both Wyoming and Montana their highest half-year's production for some years.

California

In spite of declining state allowables, drilling in California increased and the increase was largely in proven locations as oil wells rose from 378 to 442 while dry holes dropped from 137 to 93. Eighty-four of the new producers were in the Wilmington field, 46 in the newly discovered Coalinga extensions and 33 in Montebello, mostly in the eighth zone. With declining top allowables, drilling showed no signs of slackening off at the end of the half year.

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Southeast Ohio Busiest Area In Eastern Fields Last Week

By STAFF CORRESPONDENT

PITTSBURGH, Pa., July 22.—On Chestnut Ridge in South Union Township, Fayette County, Pennsylvania, New Penn Development Co., William E. Snee and others deepened No. 2 Summit Hotel (Heyn) from 6,767 ft., where it was a commercial gas well, producing from the chert beds in the Onondaga lime, and topped the Oriskany sand at 6,834 ft. Between 6,838-39 ft. there was an increase of 145,000 cu. ft. of gas a day from the Oriskany sand and drilling was suspended to change the cable.

The elevation of No. 2 Summit Hotel is 2,464 ft. which places the Oriskany at subsea 4,370 ft. The section from the top of the chert in the Onondaga, 6,686 ft., to the top of the Oriskany sand was 148 ft. or less than the other tests on this structure by 30 ft. Drilling will be resumed this week and as the sand appears better than in other tests, it is regarded with interest.

During the past week in the lower eastern fields, 37 operations were concluded, with 9 dry holes, 18 gas wells, and 10 oil wells with a daily initial of 114 bbl., most of which was in Southeast Ohio.

Is it true

what they say about B. H. Pressures?

It is a recognized fact that accurate Bottom Hole Pressure records are the most practical method of determining the *productivity index* of a single flowing well or of an oil field. *(Some states require this method of potential determination.)* Through the use of Subsurface Recording Instruments tests can be exactly duplicated a month or a year later. Basic information obtained by the use of HUMBLE TYPE subsurface Recording and Sampling instruments will assist in determining:

Estimate of oil reserves. Presence and movement of gas cap. Amount of fluid to be lifted. Minimum flowing pressures. Specific productivity factor. Density of fluid column. Static fluid and oil levels. Gas-oil ratios, etc.

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SOUTHEAST OHIO

The shallow sands in Chatham Township, Medina County, was the scene of several completions some of which will make good pumpers. In Tract 19, Lot 3, E. R. Edson & Son Co. completed wells Nos. 14 to 18, inclusive, on the Samuel Brant farm at 478 ft., 519 ft., 481 ft., 487 ft., and 500 ft., all in the Berea grit. No. 14 was good for 20 bbl. a day after shot; No. 15 for 10 bbl. a day; No. 16 for 20 bbl. a day; and Nos. 17 and 18 were both dry. In Tract 16, Lot 3, the same operators completed Wells Nos. 8 to 11, inclusive, on the J. H. Auble farm at 337 ft., 370 ft., 431 ft., and 439 ft. No. 8 is rated at 6 bbl. a day after shot; No. 9 for 2 bbl. a day; Nos. 10 and 11 were dry.

In Licking County Egan and Murphy completed a test on the Corkwell and Metz farm, west side of Newark City, Newark Township, in the Clinton sand at 2,340 ft. It is a gas well gaging 2,600,000 cu. ft. a day. In this vicinity the Wehrle Co. completed a test on the Ray Lawrence farm in the Clinton sand at 2,528 ft., which gages 600,000 cu. ft. a day.

In Meigs County B. H. Tree and others completed a test on the Alice Swearinger farm, Section 25, Sutton Township, in the shale at 3,500 ft. It was originally a gas well at 1,800 ft. and now is rated at 350,000 cu. ft. a day.

In Muskingum County Atha Oil Co. completed a test on the Paul Parain farm, SW Section 9, Blue Rock Township, in the Clinton sand at 4,301 ft. It is a gas well gaging 2,000,000 cu. ft. a day. In Licking Township Wilking Co. completed a test on the George E. Wilking farm in the Clinton sand at 3,329 ft., or 13 ft. in the sand. It is a gas well good for 1,536,000 cu. ft. a day. In the NW Section 19, Harrison Township, Palmer and Guisinger drilled No. 2 Harriet Burton through the Medina sand to 4,375 ft. and it was dry.

In Noble County Metcalf and Robinson drilled No. 4 Fred Springer, NE Section 28, Elk Township, through the lime to 1,090 ft. It had a very light showing of oil and may not be produced.

In Perry County C. Z. Ruth completed No. 16 L. Powell, NE Section 28, Monroe Township, in the Berea sand at 1,171 ft. which produced 6 bbl. the first day after shot.

In Washington County Baker and Daily completed a test on the P. D. Howiler heirs farm, SE Section 17, Aurelius Township, in the Berea at 1,465 ft. It is showing for a 2-bbl. pumper.

In Mahoning County the deep test of the Magnolia on the F. M. Fields farm, Section 19, Berlin Township, is drilling at 3,244 ft.

SOUTHWEST PENNSYLVANIA

In Indiana County, Pennsylvania, T. W. Phillips Gas & Oil Co. completed a test on the Laura Campbell farm in White Township in the Bradford sand at 3,416 ft. which is good for 63,000 cu. ft. a day. In Brush Valley Township this company drilled a second test on the Jesse A. Boyer farm through the Bradford sand to 3,473 ft. and it was dry.

In Washington Township, Indiana County, this company completed a test on the Charles T. Fleming farm in the Murraysville sand at 1,285 ft. which gaged 124,000 cu. ft. a day.

Fayette-Washington-Greene

In Menallen Township, Fayette County, Wahler Powers Oil & Gas Co. completed No. 2 Shamrock Farms Co. at 2,442 ft. with a gage of 30,000 cu. ft. a day from the Murraysville. In this township this company is drilling No. 1 W. L. Rockwell at 1,299 ft. with the Big Injun sand topped at 1,145 ft. and a gage of 1,000,000 cu. ft. a day at 1,277 ft. which is being tested.

In Amwell Township, Washington County, the test of the Equitable Gas Co. on the R. Foster farm was drilled through the Fifth sand to 3,241 ft. and it was dry. In Somerset Township this company completed the test on the W. W. Wright farm at 3,012 ft. with a gage of 160,000 cu. ft. a day from the Fifth sand. This company is drilling No. 1 Watkins at 1,945 ft.

In Jackson Township, Greene County, A. V. Lewis and others are drilling No. 1 Smith and Pethtel at 2,950 ft. with the Fifty-foot sand at 2,939-50 ft. and 2,000,000 cu. ft. a day at 2,942-45 ft. In Nicholson Township, Fayette County, Duquesne Gas Co. has started drilling a test on the Ivan Mallory farm.

WEST VIRGINIA

Another well was completed in the small local pool in Jefferson district, Pleasants County, where B. C.

(Continued on Page 199)

Texas Gulf Coast

By
NEIL WILLIAMS

Extensions to Old Fields and Interesting Tests Start on Gulf

HOUSTON, Tex., July 22.—Although there were no outstanding developments in the Texas Gulf Coast district the past week, several extensions were reported for proven fields and locations for a number of interesting tests were reported.

Pan American Production Co. extended production in the South China field, Jefferson County, a short distance to the west with the completion of No. 1 Neal. Drilled to a total depth of 7,975 ft., 7-in. casing was cemented at 7,945 ft., and the well was completed through perforated casing at 7,872-78 ft., and at 7,884-88 ft. This is the first well to be drilled on the company's acreage which was recently acquired from Titanic Oil Co. Approximately 2,000 ft. east of production, Titanic is testing No. 1 Fontenot after perforating casing at 7,870-74 ft. The well was drilled to a total depth of 8,011 ft., and broken sand showing oil was cored at intervals from 7,859-84 ft.

In the same county and west of the La Belle field, Sun, 1 Foltz is flowing into burning pits, making an unestimated amount of oil and wash water, while cleaning out through a ⅛-in. choke. Total depth is 8,683 ft., and the well was completed through perforated casing.

Wilcox production in the Ace field, Polk County, was extended 2,000 ft. southwest with the completion of Shell, 2 Kirby West Lumber Co. The Wilcox sand was topped at 7,810 ft., and production was obtained by perforating casing at 7,810-20 ft., and on a 24-hour potential gage, the well flowed 170 bbl. of 36.4-gravity oil through a ¼-in. choke. Tubing pressure was 300 lb. and casing pressure 850 lb.

The newly opened Sheridan field, Colorado County, was receiving its second Wilcox producer as Shell, 1 Goodrich was testing after drilling plug from 5½-in. casing which was cemented on top of the sand section at 8,133 ft. Total depth of the hole is 8,145 ft. The top of the sand is about normal with that of the discovery well.

On the Red Fish Reef prospect, offshore from Chambers County in Galveston Bay, Humble Oil & Refining Co. has completed cutting out screen in liner in No. 1 State, and the casing will be reperforated higher in the sand section at 8,821-25 ft., where previous testing recovered salt water, a small amount of oil, and several hundred pounds of working pressure.

Location for a projected Vicksburg test was staked on the east side of the Thompson field, Fort Bend County, by John H. Baiffer. The well is No. 7 H. P. Davis, situated on a 440-acre tract in the Robert Peebles Survey. Since the discovery of Vicksburg production on the north flank of the field, several attempts have been made to open this type of production around other flanks of the structure, but all were failures. The most recent well drilled was located on the south flank, and was drilled by the same operators.

With the spacing program and proration order set for the Rowan field, Brazoria County, new drilling operations are expected to be started in this field. A 20-acre spacing program requested by Rowan Drilling Co. was granted the company by the Texas Railroad Commission the past week. The allowable of the field is to be based 75 per cent acreage and 25 per cent on average unit potentials with a maximum of 40 acres assignable to one well for proration purposes. At the hearing it was stated by engineers, the well is producing from approximately 20 ft. of sand., and that the per acre-foot recovery should approximate 700 to 750 bbl.

The Old Ocean field, Brazoria County, was extended approximately 1,300 ft. west as Harrison & Abercrombie, 1 Mueller-Aaron flowed 279 bbl. per day through various chokes. Tubing pressure was 2,550 lb. and casing pressure 2,750 lb. The sand section was topped at 9,600 ft., and the hole was drilled to a total depth of 10,545 ft. Production was obtained by perforating casing.

Locations for two more wildcats were announced for Jackson County. Means & McGehee et al staked location for No. 1 Montex Oil Co., I.&G. Survey, Section 2, while Stanolind Oil & Gas Co. made location for No. 1 American National Realty Co., located in the Caranacahua Bay area in the Richard Grimes Survey.

In the Lolita area S. W. Richardson, 1 Clement, a projected 10,000-ft. test, is drilling in shale below 5,600 ft. In the Lolita field Wellington Oil, 3 Ranch logged sand and shale showing oil at 5,919-42 ft., the total depth, and 5½-in. casing was cemented for completion. Offsetting the discovery well to the southwest, Humble completed No. 1-B L. Ranch for an initial production of 562 bbl. per day, flowing through a ¼-in. choke. The sand section was topped at 5,926 ft., and the well was completed at a total depth of 5,943 ft.

In Galveston County and located in the Alta Loma field, Stanolind, 2 J. A. Hulen, 1,350 ft. southwest of the discovery well, is drilling below 7,237 ft., where a protection string of 9⅝-in. casing was cemented earlier in the week. Northwest of the discovery, Stanolind, 3 Hulen is drilling in shale with streaks of lime below 7,317 ft. This well is being drilled as a relief well to the discovery well which is still flowing several hundred barrels of oil and salt water per hour through two 2-in. flow lines.

W. P. Luse staked location for a 9,500-ft. test on the south flank of the Esperson dome, Liberty County. The well is located on the J. H. Hlavaty lease in the F. M. Gardner Survey. The well is southeast of a deep test drilled by General Crude Oil Co., which failed to find commercial production although several sidetrack jobs were required to drill the well to a depth below 8,900 ft. The well will seek production in the lower Yegua or Vicksburg, which produces on the extreme southeast flank of the structure.

In San Augustine County G. E. Ellis and Don Bishop staked location for No. 1 L. Sharp estate, in the A. M. Davis Survey, a projected 6,000-ft. wildcat located in the northwestern part of the county. The well is being drilled on a 6,500-acre block in an area in which several major and independent companies hold considerable acreage. Material is being moved in and the well is to be spudded in the near future.

In the Tamina area, Montgomery County, David B. MacDaniel, 1 Hattie Baldwin is temporarily shut down and it is reported that a major company has taken a 60-day option on the block, and is now rechecking the area with geophysical instruments. This well logged encouraging showings in the Wilcox section, and made an unestimated amount of oil and showed considerable gas, but due to mechanical trouble commercial production was never developed.

In the Kountze area, Hardin County, J. W. Frazier, 1 Mills, S. B. Turner Survey, is drilling in shale below 8,245 ft.

In the Mount Houston area J. W. Frazier et al, 1 Killerman Johnson is drilling in shale below 3,527 ft.

Glenn McCarthy, 1 Munson, a wildcat on the Bailey Prairie prospect, Brazoria County, is cutting and pulling 2-in. tubing which became stuck in the hole while the operator was attempting to make a production test at 11,642-52 ft.

TEXAS GULF COAST COMPLETIONS

Brazoria County

Anchor field: Humble, 2 Mettler, 10,605 ft., dry.
Manvel field: Texas, 6 Lemer, perf. casing 5,318-23 ft., 121 bbl. oil and 121 bbl. water, ¼-in. choke.
Old Ocean field: Harrison & Abercrombie, 1 Mueller-Aaron, top sand 9,600 ft., total depth 10,546 ft., 279 bbl., various chokes.
West Columbia field: Gulf, 1 Mays, sand 5,600-09 ft., 369 bbl., ¼-in. choke.

Chambers County

Anahuac field: Gulf, 7 Syphrett, sand 7,125-45 ft., 730 bbl., ¼-in. choke.
Humble, 4-C Doughtie, sand 7,123-42 ft., 664 bbl., ¼-in. choke.

Fort Bend County

Thompson field: Quintana, 16 Wolters, sand 4,292-4,385 ft., 129 bbl., ⅛-in. choke.

Harris County

Tomball field: Standard Oil Co. of Kansas, 1 Martens, perf. casing 5,562-85 ft., 263 bbl., ¼-in. choke.

Liberty County

Esperson field: General Crude, 12-B Esperson, top sand 6,742 ft., total depth 6,886 ft., 174 bbl., ¼-in choke.

Matagorda County

Van Vleck field: Skelly, 7 Moore, perf. casing 8,491-95 ft., 298 bbl., 5/32-in. choke.
Markham field: Red Bank, 3-A Howard Smith, sand 1,036-50 ft., 8 bbl., pumping.

Polk County

Ace field: Shell, 2 Kirby West Lumber Co., perf. casing 7,810-20 ft., 170 bbl., ¼-in. choke.

Tyler County

Joe's Lake field: Republic, 38 fee, top sand 7,669 ft., total depth 7,709 ft., 232 bbl., ¼-in. choke.

Wildcat Abandonment

Matagorda County: Texas, 2 Taylor, 9,933 ft., dry.

Appalachian Fields

(Continued from Page 198)

Deem, Jr. (G. M. S. Powell Farm Oil Co.) bottomed No. 5 D. P. Carder in the Squaw sand at 1,870 ft. It is good for 40 bbl. a day, initial.

In Wirt County Septer W. Douglas completed No. 4 Anna C. Tucker in Spring Creek district at 1,322 ft. with 2 bbl. a day from the Cow Run sand and 2 bbl. a day from the Salt sand.

In Wood County Leeton and Flanagan completed a test on the C. A. Baker farm in Walker district at 1,750 ft., the Maxton sand, but it was shot in the second Salt sand at 1,490-1,500 ft., and is good for 4 bbl. a day.

Gas Wells

In Boone County Owens Libby Owens Gas Department completed No. 25 (549) Allen and Pryor in Scott district at 2,378 ft. with the Big lime at 1,659-1,847 ft.; Big Injun at 1,847-77 ft.; Berea at 2,332-49 ft.; and a final gage of 116,000 cu. ft. a day.

In Calhoun County Elliott and Cain drilled a test on the J. O. Mills farm in Sheridan district through the Injun sand to 1,857 ft. and it was dry.

In Lincoln County Brooks Gas Co. completed No. 1 A. F. Morris, mineral, in Jefferson district at 1,600 ft. with the Salt sand at 850-1,115 ft.; Big lime topped at 1,550 ft. and a gage of 3,186,000 cu. ft. a day without shot. The rock pressure at the end of 12 hours was 423 lb.

In Laurel Hill district, Lincoln County, United Fuel Gas Co. deepened No. 2260 Guyan Land Association, starting at 2,365 ft., the brown shale was at 3,215-3,490 ft., with a gage of 170,000 cu. ft. a day 4 hours after shot. In Jefferson district Hope Natural Gas Co. deepened No. 2460 John Linville, starting at 2,460 ft., the brown shale was at 3,540-3,880 ft. It gaged 79,700 cu. ft. a day 13 hours after shot.

In Putnam County W. C. Kingery and others completed No. 1 M. F. Mitchell, Curry district, at 2,040 ft. with the Big lime at 1,296-1,477 ft.; Big Injun at 1,508-40 ft.; Berea at 2,009-32 ft. It gaged 200,000 cu. ft. a day 24 hours after shot.

In Ritchie County A. Jackson completed a test on the Charles Campbell farm in Murphy district in the first Salt sand at 1,476 ft. which is good for 300,000 cu. ft. of gas a day. In this district Pittsburgh Oil & Gas Co. completed deepening No. 1 J. P. Coyle at 2,035 ft. There were no new pays from 1,685-2,035 ft. It was shot at 1,663-75 ft. and has a volume of 150,000 cu. ft. a day.

Prospects on Louisiana Coast Showing Good Production

By NEIL WILLIAMS

NEW ORLEANS, La., July 22.—Union Oil Co. of California, 1 Webster White, the discovery well of the White Lake field, Vermilion Parish, is shut in for additional storage after flowing several days at the rate of 225 bbl. of 32-gravity oil per day through a ¼-in. choke. Tubing pressure was 2,200 lb., and the well was making an estimated 190,000 cu. ft. of gas. Drilled to a total depth of 11,098 ft., production was obtained by perforating casing at 10,536-42 ft. The well is located in 17-15s-1e, and location for a second test is said to have been made although actual foot measurements are not available.

Phillips Petroleum Co. definitely opened distillate production on the Chenier prospect, Cameron Parish, with the completion of No. 1 Miami Corp., which is flowing a large volume of gas and an unestimated amount of distillate, while cleaning out through a 1/6-in. choke under a working pressure of 4,580 lb. Total depth of the hole is 10,656 ft., and the well was completed through perforated casing at 10,196-10,200 ft.

Superior, 3 State, which was expected to open the first production on the Calcasieu Lake dome, Cameron Parish, is drilling deeper after testing salt water on a third production test through perforated casing at 9,485-95 ft. Casing was cemented on this well following an electrical survey which indicated three possible sands, but drill-stem testing at 8,567-77 ft. and at 9,450-60 ft. recovered salt water with no showing of oil or gas.

Hawkins & Grubb, 1 Thibodaux, a north offset to the discovery well of the La Fourche Crossing field, La Fourche Parish, is flowing an unestimated amount of distillate through a $\frac{7}{32}$-in. choke, while testing through perforated casing at 10,097-10,112 ft. Total depth of the well is 10,154 ft., and 7-in. casing was cemented at 10,150 ft. Drill-stem testing in the main sand section at intervals from 10,103-39 ft. showed gas and a small amount of distillate. This is the third producer for the field, the other two wells having been completed for oilers in the 10,100-ft. sand.

In the North Elton field, Allen Parish, Bel Oil, 2 Bel estate, a southwest offset to the discovery well, is bottomed at 7,654 ft. and 7-in. casing is being cemented on bottom preparatory to completing as a gas well through perforated casing. An electrical survey is reported to have shown no oil sands. This is the third test to be drilled on the structure, two other wells having been completed as distillate producers in two separate sands at 7,400 and 7,200 ft.

In the Neale field, Beauregard Parish, Atlantic Refining Co. has reached the pay in another outpost well and is running casing for a production test. No. 2-B Rice Land & Lumber Co., approximately ½ mile northwest of production in 27-3s-11w, is bottomed at 8,435 ft. and preparations are being made to test after an electrical survey showed favorable indications. Details as to where the sand was topped were not available.

A slight extension was recorded for the Chalkley field, Cameron Parish, with the completion of Humble, 11 Hanszen, which is flowing an estimated 10 bbl. of oil per hour through a ¼-in. choke. Total depth is 8,623 ft., and the well was completed through perforated casing at 8,584-94 ft. Location is in 9-12s-6w. Shell, 2 Sweet Lake Land & Oil Co., 20-12s-6w, is bottomed at 8,957 ft., with 5½-in. casing cemented at 8,925 ft.

Production from a new and shallower sand was opened in the Lafitte field, Jefferson Parish, Texas. No. 7-A Madison Realty Co., 21-17s-24e, was completed through perforated casing at 4,410-20 ft. for an initial production of 136 bbl. per day, flowing through a ¼-in. choke. This sand was recently tested in another well, but no commercial was ever developed, and the well was completed in the regular pay below 10,000 ft. No. 17 Lafitte flowed 768 bbl. per day from perforated casing at 10,000-50 ft.

In the Barataria field, Jefferson Parish, California. 1 Fleming Plantation, east of the discovery well, is bottomed at 8,797 ft. and 7-in. casing was cemented on bottom.

California, 15 Delta Minerals, about ⅛ mile northeast of the discovery well of the Lake Salvador field, Plaquemines Parish, is drilling ahead in shale below 10,000 ft. after a protection string of 7-in. casing was cemented at 9,650 ft. The discovery well which is being deepened after salt-water encroachment is fishing for drill pipe at a total depth of 10,807 ft.

North of the discovery well of the West Cote Blanche field, St. Mary Parish, Texas, 2 State, swabbed oil and salt water through perforated casing at 4,996-5,020 ft., and the company is preparing to retest after making a cement-squeeze job. The well was drilled to a total depth of 9,491 ft., and 7-in. casing was cemented at 9,474 ft. after an electrical survey indicated several sands at intervals from 3,000 to 6,000 ft. The discovery well of the field was completed as a small producer in sand at 3,109-36 ft.

Union Sulphur, 1 Miller, Woodlawn field, Jefferson Davis Parish, is flowing at the rate of 50 bbl. of fluid per day while testing through a 28/64-in. choke. Fifty per cent of the fluid is salt water. Seven-inch casing was cemented on bottom at 9,597 ft. and the well is testing through perforated casing at 9,593-94 ft. Location is in 6-9s-5w.

DRILLING OPERATIONS ON MISCELLANEOUS WILDCATS

Burton, 1 Mayo Realty, Calcasieu Parish, 8-11s-8w, drilling shale 8,420 ft.
Hamman Exploration, 1 Sabine Rice Land, Calcasieu Parish, 3-11s-11w, drilling shale 2,560 ft.
Falcon-Seaboard, 1 Foise, Iberville Parish, 42-11s-13e, coring sandy shale 10,868 ft.
Shell, 1 State, Jefferson Parish, 27-20s-24e, drilling shale 7,204 ft.
Union Sulphur, 1-A Calcasieu National Bank, Jefferson Davis Parish, 2-8s-4w, drilling shale 8,725 ft.
Gulf, 1 Allen, south of production, Golden Meadow field, La Fourche Parish, 5-20-22e, drilling shale 10,430 ft.
Gulf, 1-E Buras Levee, 12-3s-30e, drilling shale 10,067 ft.
Stanolind, 1 Stare, Bay Junop dome, Terrebonne Parish, 35-21s-14e, total depth 8,508 ft., 9⅝-in. casing cemented on bottom.
Sun, 1 Bell Isle Corp., Belle Isle dome, St. Mary Parish, 6-18s-11e, drilling shale 9,378 ft.

LOUISIANA GULF COAST COMPLETIONS

Acadia Parish

Jennings field: Shell, 11 Conover, 7,570 ft., 711 bbl., ¼-in. choke.
Cherokee Oil, 1 Jennings-Heywood, sand 1,830-60 ft., 60 bbl. fluid, 50 per cent salt water, pumping.

Calcasieu Parish

Gillis field: Union Sulphur, 3 McIver, perf. casing 7,004-14 ft., 6 bbl. distillate, ⅛-in. choke.
Sulphur field: Union Sulphur, 865 fee, 6,588 ft., dry.
Union Sulphur, 869 fee, 5,690 ft., 327 bbl., $\frac{7}{32}$-in. choke.

Cameron Parish

Grand Lake field: Superior, 14 State, perf. casing 8,950-52 ft., 212 bbl., 9/64-in. choke.

Iberia Parish

Fausse Point field: Texas, 7 State, 7,450 ft., 25 bbl. distillate, 12/64-in. choke.

Jefferson Parish

Lafitte field: Texas, 17 Lafitte, perf. casing 10,000-50 ft., 768 bbl., ¼-in. choke.

(Continued on Page 209)

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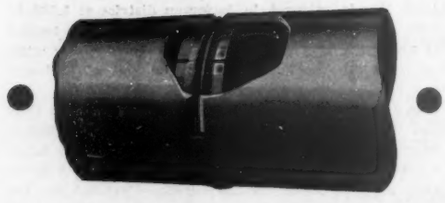

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Twice as Many Dry Holes as Producers in Michigan

By OTTO C. PRESSPRICH

SAGINAW, Mich., July 22.—With production showing another decline last month and none of nearly a dozen wildcat tests near the completion stage, Michigan oil development last week was featured by addition of about 675 bbl. to the daily potential of the Wise field in Isabella County, a Central Michigan basin field. The new production was the result of completion of a Cities Service Oil Co. well in Section 8 which was good initially after acid for 424 bbl. a day and a McClanahan Oil Co. and Burke White well completed in Section 17 for 245 bbl. a day.

For the state as a whole, the week's completion report showed six new producing wells with combined initial production of 947 bbl. a day, one natural-gas well rating 1,500,000 cu. ft. a day, 13 dry holes abandoned and two abandoned locations.

Featuring activity of a wildcat nature was the announcement last week by Gulf Refining Co. of plans to test for oil at depths never before attempted in Michigan. State geologists and oil companies naturally are much interested. The company said it will drill its No. 1 Bateson in Section 2 of Monitor Township, Bay County, to a maximum of 9,000 ft. in search of new pools. Deepest commercial production in Michigan now is around 4,000 ft. The effort is to get oil in formation which produced the important fields in Ohio and Indiana, according to Dr. R. A. Smith, state geologist. The Trenton sand, which will be the objective, is believed to lie between 9,000 and 10,000 ft. in the vicinity of Mount Pleasant, low point of the Michigan basin. The formation has shown oil in Monroe County. The Bateson was drilled originally to 4,454 ft. and last year was plugged back to 3,817 ft. in the Monroe formation, being completed as a 30-bbl. pumper.

The drilling contract has been let to Parker Drilling Co., which drilled the first deep basin test with rotary for Gulf in the Temple-Clare district last year. Heavy rotary outfits of the kind used in Gulf of Mexico coast operations will be used, employing a 136-ft. steel derrick. Standard height of derricks used in Michigan is about 87 ft.

Few scattered tests below 4,500 ft. have been made in Michigan. The deepest was a 6,674-ft. test in 1935 in Newaygo County.

Completions last week were in 14 Michigan counties, production, besides that of the Wise field, coming in Heath of Allegan, where one oil well and one dry hole were completed; in Redding of Clare, where American Drilling Co. got a 100-bbl. producer, while Taggart Brothers were abandoning gas tests in Freeman and Lincoln townships of Clare, in Buckeye of Gladwin and Porter of Midland.

Nineteen additional drilling permits were issued by the state Conservation Department. Seven are for wildcat tests and the permits were listed for 10 counties, Ottawa getting five, three of them for wildcats in Holland, Park and Jamestown townships. Casco and Watson townships of Allegan County are locations for two other wildcats and another is Caledonia of Kent. Two of the permits are for natural-gas tests in Clare and Montcalm counties.

The June production figures compiled last week revealed that Clare County's Freeman-Redding section again rates as the principal producing field in Michigan, having replaced the Walker-Wyoming-Tallmadge field of Kent and Ottawa counties. The daily average production in the state in June was announced as 54,163 bbl. for a month's total of 1,624,879 bbl., compared with 1,757,390 bbl. in May. The Freeman-Redding production averaged 12,636 bbl. a day, while the Kent-Ottawa output declined to 11,642 bbl., a drop of about 1,000 bbl. a day, compared with an increase of around 600 bbl. for Freeman-Redding. Midland's Porter-Yost field held its average well, the daily output of 4,881 bbl., jumping it ahead of Van Buren County, which declined to 4,049 bbl. Allegan pools, although also showing a decline, held third place with daily average of 7,672 bbl.

Last week's completions summary follows:

Allegan County

Heath Township: Fletcher & Leman, 2 Hulsman, SW SW SW 3-3n-14w, 30 bbl. after acid at 1,532 ft.

James S. Brailey, 1 John Japink, W½ SE NW 10-3n-14w, dry at 1,589 ft.

Arenac County

Clayton Township: W. E. Ross, 2 Burt Peavy, SW NE 9-20n-4e, 1,500,000 cu. ft. at 1,156 ft.

Clare County

Freeman Township: Taggart Brothers, 31 Beard and others, NW 11-18n-6w, dry at 1,650 ft.
Lincoln Township: Taggart Brothers, 24 Garrison-Sherwood, NW 7-18n-5w, dry at 1,569 ft.
Redding Township: American Drilling Co., 1-X State, N½ SE SW 29-19n-6w, 100 bbl. at 3,847 ft.

Gladwin County

Buckeye Township: Charles W. Teater, 9 Andrew Domakos, SW NW 11-18n-1w, 48 bbl. a day, after acid treatment at 3,636 ft.
Gladwin Township: Sun Oil Co.'s No. 1-A State-Gladwin, Township 19n-1w, dry at 3,540 ft.

Isabella County

Fremont Township: Archie M. Henry, 1 Enos Wyant, S S½ NW SW 5-13n-5w, dry at 3,902 ft.
Wise Township: Cities Service Oil Co. reported after acid production of 424 bbl. a day from No. 3 Parsell, SE SW SE 8-16n-3w, at 3,721 ft.
No. 4 Nixon, NW NE SE 17-16n-3w, drilled by McClanahan Oil Co. and Burke White, rated 245 bbl. a day, after being acid treated at a depth of 3,722 ft.

Kent County

Caledonia Township: Smith Petroleum, 1 Timm, SE NW NE 22-5n-10w, dry at 1,981 ft.

Mecosta County

Green Township: Weber, 1 Richard Wachter, SE SE NW 29-16n-10w, dry at 3,531 ft.

Midland County

Porter Township: Pure, 31 Mina B. Narmore, CEL NW 15-13n-1w, 100 bbl. a day at 3,405 ft. after acidizing.

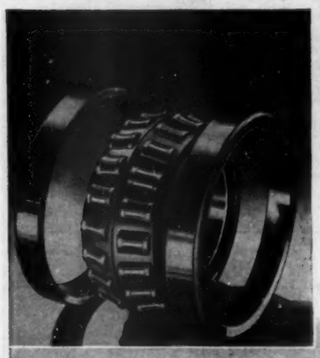
Monroe County

Summerfield Township: J. J. McDonald, 1 George McCarty, NE NE NE 6-7s-6e, dry at 2,105 ft.

Montcalm County

Richland Township: Belvidere, 1 McGowen, NW SW SE 17-12n-5w, abandoned at 1,220 ft.

(Continued on Page 203)



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Oklahoma Operations

By
DAL DALRYMPLE

Cromwell Sand Pool Opened In Southwestern Okfuskee

A Cromwell sand pool was opened in Okfuskee County, Oklahoma, at Reese Drilling Co., Ralph Dillenbeck and others' No. 1 Berryman, NW SW SW Section 36-11-8, east of the Cromwell pool and northwest of the Olympic pool. It found Cromwell sand at 3,462 ft., was bottomed at 3,476 ft. in saturated sand, and 7-in. casing was cemented at 3,459 ft. When plug was drilled mud and water flowed from the hole for 15 minutes, and then it began flowing oil through 4-in. lead line. It was shut in for tanks and separator after flowing for 30 minutes. The oil flow was accompanied by high-pressure gas. Gravity of the oil was 36°. Dillenbeck obtained the lease on farmout from Texas Co., and assigned an interest to the Reese company. Shell Oil Co., Inc., has acreage offsetting the discovery lease. The wildcat also had oil showing in Booch sand topped at 3,089 ft.

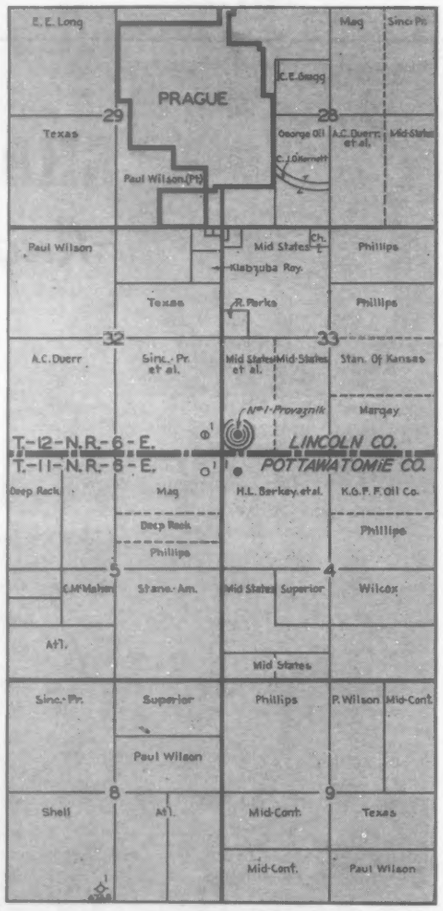
Opening of a pool in Payne County seemed certain at W. H. Elson and others' No. 1 Murphy, SE SE NW Section 20-19-2e, west of Stillwater. It topped Hunton lime at 4,550 ft., recovered 13 ft. of lime showing oil at 4,561-79 ft., and on drill-stem test flowed 10 bbl. of oil in 15 minutes, with some gas. The crew continued drilling with Wilcox sand as the goal. Viola lime was found at 4,680 ft., Simpson dense at 4,720 ft., dolomite at 4,740 ft., and Wilcox sand at 4,758 ft. Coring was begun at 4,765 ft., where a slight showing of oil was found and it was believed the main body of Wilcox pay was beginning.

Estimated Daily Production

Estimated daily production in Oklahoma for the week ended July 20, and for the preceding week, was as follows:

	Barrels	
	July 20	July 13
Allen	5,250	5,325
Billings	6,050	6,100
Burbank	7,100	7,050
South Burbank	8,225	8,200
Balance Osage	17,150	17,000
Blackwell district	3,500	3,500
Bristow-Slick	5,750	5,750
Chandler	1,000	1,000
Crescent	2,300	2,250
Cromwell	2,900	2,950
Cushing-Shamrock	9,150	9,100
Duncan	3,650	3,700
Edmond	4,100	4,125
Fish	3,150	3,100
Fitts	16,100	16,900
Jesse	2,100	2,125
Graham-Fox	2,450	2,500
Gray	750	700
Healdton	8,750	8,850
Hewitt	3,800	3,800
Keokuk	3,150	3,150
Konawa	1,100	1,100
Lucien	7,950	7,950
Moore	1,800	1,775
Northeastern counties	17,000	16,850
Oklahoma City	106,150	100,500
Olympic	2,000	2,100
Ramsey	3,800	3,800
Sasakwa	1,450	1,450
Sholem-Alechem	2,750	2,850
Seminole district:		
Bowlegs	6,700	6,800
Carr City	2,350	2,350
Dora	2,350	2,425
Earlsboro	4,150	4,150
East Earlsboro	1,850	1,850
South Earlsboro	550	550
Little River	6,725	6,700
East Little River	700	700
Maud	550	550
Mission	1,300	1,325
Seminole	7,125	7,100
East Seminole	1,300	1,325
Searight	2,050	2,050
Total Seminole	37,700	37,875
St. Louis-Pearson	26,500	27,250
Tatuma-Tussy	1,900	1,850
Tonkawa-Garber-Thomas	3,800	3,800
Wewoka	1,500	1,500
Yale-Jennings	3,250	3,200
Other pools	79,500	80,550
Total Oklahoma	414,525	411,575

Continental Oil Co.'s No. 1 School Land, C NE Section 16-8-16w, southeast of Cordell in Washita County, was shut down at 8,000 ft. in granite wash, reported topped at 4,000 ft. First granite wash was found at 3,005 ft. This is thought to be the thickest section of the formation ever drilled. Original plans were to drill to 10,000 ft., but because of the thick section of granite wash this may not be done. Location is on a lease spread of more than 22,000 acres. The same company drilled its No. 1 Proctor, C NW Section 28-10-20w, southeast of Elk City, but in Washita County, on a 32,000-acre block, abandoning it several months ago at 14,582 ft., deepest depth ever drilled in Oklahoma and second deepest in the world. Fain Drilling Co., Oklahoma City, had contract on both wells.



Midcontinent Map Co., Tulsa

The second producer in the Prague pool, the first on the Lincoln County side of the pool, was near completion at Midstates Oil, 1 Provzanik, SW cor. 33-12-6, north offset to the discovery. Magnolia Petroleum Co. was starting work at a west offset to the discovery, and H. L. Berkey and others have started the northwest offset

A producer on the north side of the Hobart pool, Kiowa County, was near completion at Argo Oil Co. and Gled Oil Co. and others' No. 1 Ratliff, SE NE NE Section 19-7-17w. Bottomed at 1,048 ft., it flowed 6½ bbl. of oil an hour, was acidized and flowed 49 bbl. an hour through tubing with gas estimated at 5,000,000 cu. ft. daily. This well blew out at 917 ft., with gas estimated at 15,000,000 cu. ft., but it was killed, gas cased off and hole deepened.

In the Cumberland pool, Marshall County, Pure Oil Co.'s No. 1 Little-101, NE SW SE Section 28-5s-7, was shut down at 5,275 ft. in McLish formation, topped at 5,269 ft., to run electrical survey. It is two locations southwest of the discovery well. Four other wells in the area, one in Bryan County and one on the Marshall-Bryan County line, were drilling ahead and work was due to start at two new locations.

A sale of oil and gas leases on Indian lands will be held at the Five Civilized Tribes agency in Muskogee August 6. Leases will be offered on 46 tracts in Washington, Creek, Okmulgee, Okfuskee, Seminole, Garvin, Grady, Stephens and Marshall counties.

The Prague pool, recently opened in northeastern Pottawatomie County, was extended across the line into Lincoln County at Midstates Oil Co.'s No. 1 Provaznik, SW cor. Section 33-12-6e, north offset to the discovery. It had oil showing at 3,257-78 ft., in Senora sand, and pipe was set at 3,262½ ft., total depth 3,288 ft. It was flowing by heads after a shot.

COMPLETIONS, FIRST REPORTS

Wildcats

Carter County: Hancock, 1 McCluskey, SE SW NW 8-1s-2w, northern part of the county. Sand 651-66 ft., total depth 750 ft., plugged back to 668 ft., gas estimated at 1,000,000 cu. ft.

Lincoln County: Fields, 1 Alspaugh, SW SE NW 35-15-6, near Stroud. Pure 3,068 ft., total depth 3,150 ft., dry.

Osage County: Mid-Continent Petroleum, 1 Osage, NW NW NE 18-24-5, near Fairfax. Second Wilcox sand 3,592-3,650 ft., Bergen sand 3,707-08 ft., dry.

Payne County: Burke-Greis, 1 O'Keefe, W½ E½ NW 26-19-5. Wilcox 3,670-75 ft., second Wilcox 3,688-3,737 ft., total depth, dry.

Pontotoc County: L. P. Sandback and others, 1 Statler, NE NE NE 26-5-6, in Conservation area. Sands 1,822-48 ft., 1,860-1,903 ft., total depth 2,007 ft., plugged back to 1,903 ft., 7-in. casing 1,860 ft.; gas gaged 6,500,000 cu. ft., with 550 lb. rock pressure, sprayed 4 bbl. of oil daily, completed for gas well.

Pottawatomie County: J. F. Smith, 1-A McKown, SE SW NW 25-8-4, north side of St. Louis district. Hunton 4,045 ft., Sylvan 4,171 ft., total depth 4,174 ft., acidized 2,500 gal., flowed 307 bbl. of 41-gravity oil and 16 bbl. water in 24 hours, with gas estimated at 1,500,000 cu. ft.

New outposts: Thompson, 1 Alliance, SW SE SW 22-4-2e, about 5 miles southwest of Byars but in Garvin County, location; Ramsey Petroleum, 1 well, C SE SW 5-5-10, Calvin area, Hughes County, location; Langston, 1 Livergood, NE NE NW 29-28-2e, about 4 miles west of Newkirk and east of Dilworth pool, Kay County, drilling below 2,493 ft.; Williams, 1 Trueblood, C SE SE 25-25-1w, northeast edge of Tonkawa field, Kay County, spudded; W. B. Pine, 1 Fuller, C NW 13-11-16, about 4 miles southwest of Checotah, McIntosh County, location; Townsend, 1 Lynn, NW NE NW 28-6-4, between Asher and Gray pools, Pottawatomie County, set 12-in. casing 120 ft., waiting.

Caddo County

Cement field: Ohio, 8 Wagner, NE SE SW 12-5-9w. Noble-Olson 3,232-50 ft., unconformable lime 3,298-3,319 ft., no Rowe sand, total depth 3,387 ft., plugged back to 2,000 ft., whipstocked, Rowe sand in new hole 3,340-62 ft., total depth 3,420 ft., plugged back 3,366 ft., flowed 430 bbl. in 4 hours, daily potential 2,582 bbl., flowing.

Hughley, 1 Yingling, SE NW SE 3-5-9w. Sand 3,807-59 ft., total depth 3,863 ft., set pipe on top of sand, potential 1,498 bbl., swabbing.

George Pace, 1-A Culp, SW NW NE 6-5-9w. Set 12½-in. casing at 110 ft., temporarily abandoned.

Pace, 2 Davis, NE SW NW 6-5-9w. Broken sand 3,300 ft., sand 3,305-17 ft., total depth, 6-in. casing 3,296 ft., pumped 90 bbl. in 12 hours and pumps off.

Pace, 1-A Wray, NW SW NE 6-5-9w. Total depth 3,521 ft., dry.

Magnolia, 15 McKenna, CNL SE SE 11-5-9w. Rowe 3,301-16 ft., total depth 3,331 ft., swabbed 112 bbl. in 4 hours, potential 671 bbl., swabbing.

A. L. Rollins and others, 2 Hedlund, NW SE NE 11-5-9w. Total depth 3,820 ft., 6-in. pipe 3,740 ft., perforated 3,180-90 ft., flowed 90 bbl.

Magnolia, 8 Sames, NW NE NE 35-6-10w. Total depth 4,500 ft., plugged back to 4,380 ft., 7-in. casing 4,273 ft., gaged 42,000,000 cu. ft. gas, with 220 lb. back pressure and 1,630 lb. shut-in pressure.

Rollins and others, 1-A Hedlund, SW SE NE 11-5-9w. Total depth 3,895 ft., flowed 243 bbl.

Magnolia, 8 Medrano, NW SW SW 36-6-10w. Cellar and pits.

Cotton County

Walters field: Red Bank Oil, 4 Anderson, SE NE SW 23-1s-10. Set 6-in. pipe 2,150 ft., total depth 2,172 ft., gaged 133,000 cu. ft. gas.

Red Bank, 1-A Bondurant, C SE SW 24-1s-10w. Spudded with rotary.

Grady County

Knox field: T. H. McCasland, 2 Slusher, N½ N½ NE SE 28-3-5w. Total depth 2,536 ft., pumped 18 bbl.
Chickasha field: Leonard, 1 Short, SE NE SW 25-4-8w. Cellar and pits.

Latimer County

Norris area: Le Flore Gas, 35 Holmes, SW NE NE 6-6-22. Location.
Le Flore, 34 Smallwood, NE SE NE 1-6-22. Sand 1,747-1,872 ft., total depth 1,969 ft., plugged back to 1,872 ft., shot 1,772-1,872 ft., gaged 2,500,000 cu. ft. gas, with 425 lb. rock pressure.

Lincoln County

Perkins area: Atlantic, 1 Kint, NW NE SE 23-17-2e. Wilcox 4,721 ft., total depth 4,752 ft., dry.

Okfuskee County

Dill field: Droppleman, 1 Dill, SE SE SE 34-12-8. Cromwell 3,541 ft., total depth 3,544 ft., set 7-in. casing 3,540 ft., flowed 240 bbl.
Weleetka area: Doak, 2 Community, SE NW NE 16-10-11. Wapanucka 2,721 ft., total depth 2,855 ft., set 7-in. casing 2,786 ft., flowed 85 bbl.

Oklahoma County

Oklahoma City field: Phillips Petroleum, 1 Ellison, NE SE SW 27-12-3w. Simpson 6,460 ft., Wilcox 6,556 ft., total depth 6,614 ft., shot 6,566-6,614 ft., pumped 236 bbl.

Okmulgee County

Bald Hill field: Flecks, 2-A Adams, W½ NE SW 12-14-14. Total depth 1,082 ft., dry.
Dodge Brothers, 1-B Russell, NW cor. 21-15-14. Total depth 1,857 ft., dry.

Payne County

Cushing area: Ray Dunnett, 1 Townsite, SE SW SE 33-18-5. Wilcox 3,941 ft., total depth 3,961 ft., dry.

Pontotoc County

Bebee field: Harwell, 3 Summers, NW SE SE 26-5-4. Viola 2,495 ft., total depth 2,650 ft., shot 2,542-93 ft., acidized 2,000 gal., pumped 197 bbl.
Riddle, 1-A Standridge, N½ NW SE 25-5-4. Viola 2,510 ft., total depth 2,602 ft., acidized 4,000 gal., pumped 132 bbl. of oil and 250 bbl. water.
Superior, 4 Indian Boy, NW SE NW 36-5-4. Viola 2,403 ft., dolomite 2,570 ft., total depth 2,631 ft., acidized 2,000 gal., pumped 50 bbl.

Pottawatomie County

South Konawa field: Culver & Burton, 1 White, NE NW SW 9-5-5. Viola 2,560 ft., Wilcox 2,840 ft., total depth 2,990 ft., perforated in Viola, acidized 1,000 gal., pumped 18 bbl. of oil and 60 bbl. water.
Hall, 1 Walker, SE SW SW 4-5-5. Spudded.
Avoca pool: Atlantic, 2 Harris, SE NW SW 6-4-4. Location.
Prague pool: Magnolia, 1 Studer, NE NE NE 5-11-6. Cellar and pits.

Tulsa County

Independent pool: H. E. Sindorf, 2 King, NW SE NE 35-17-12. Total depth 723 ft., gaged 500,000 cu. ft. gas.
Jenks area: Tate and others, 1 Tate, N½ N½ NE SE 35-18-13. Total depth 1,920 ft., dry.

Wagoner County

Goble area: Sewell and others, 2 Joseph, S½ SE SW 14-17-15. Total depth 1,055 ft., dry.
Miscellaneous: W. C. Gartner, 1 Sullivan, NE NE NE NW 16-17-17. Total depth 816 ft., gas estimated at 2,000,000 cu. ft.
L. D. Grimm, 2 Penson, NE NE SW SE 16-18-18. Total depth 453 ft., dry.

Additional New Work

Beckham County: Westoak Gas, 1 Roles, C NW SE 11-9-25w, Erick area. Building rig.
Carter County: Boring, 1 Lamb, NE NW NE 29-4s-2w. Moving in rotary tools.
Creek County: McAdams, 3 Fast, NE SE NE 36-17-9, Kellyville area. Drilling below 1,425 ft.
Hughes County: Ellison, 1-A Byrd, SE NE SE 4-9-11, Alabama pool. Cellar and pits.
Love County: Colvin, 2 Westheimer & Daube, W½ SE SW 27-6s-2e. Cellar.
Jackson County: Gulf, 4 Herbert, NE SE SE 9-1n-20w, Altus area. Moving in rotary tools.

Michigan Fields

(Continued from Page 201)

Saginaw County

Fremont Township: Freeman, 1 Stanley Krych, NE SE SE 26-11n-2e, dry at 3,025 ft.

St. Clair County

Grant Township: William F. Malow, 2 William Ernest, NW SW NW 27-8n-16e, abandoned at 1,260 ft.

Van Buren County

Columbia Township: D. A. Matteson, 1 Lee Messer, SW SE SE 25-1s-15w, dry at 1,300 ft.
Geneva Township: Smith Petroleum, 1 Fred E. Riemer, NE SE SE 21-1s-16w, dry at 1,077 ft. and location was abandoned for No. 1 Harry Grigarik, SE NE SE 21-1s-16w.

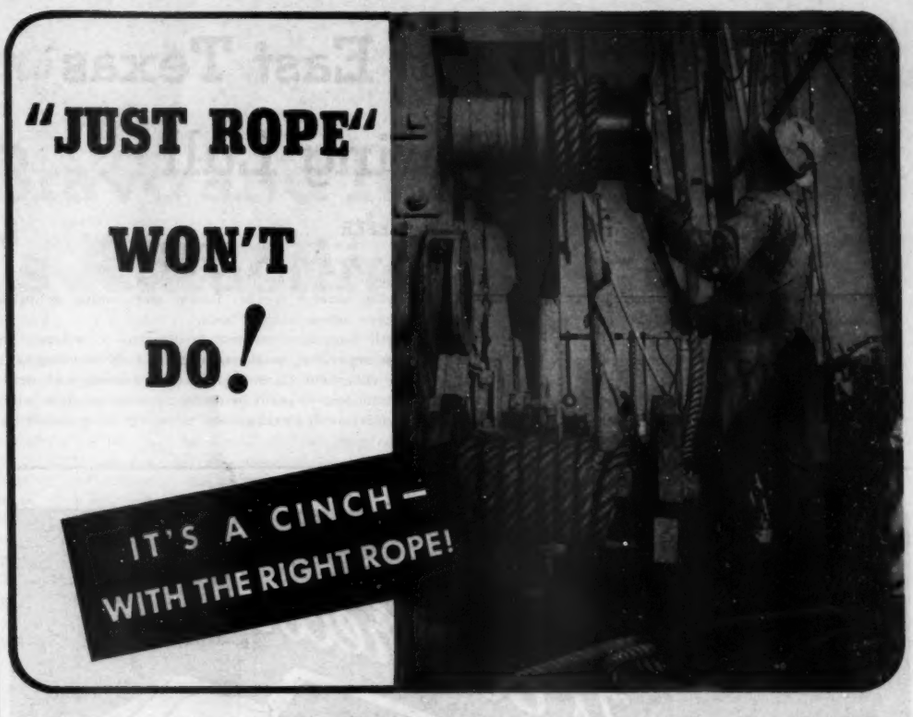
Wexford County

Haring Township: G. H. Schrack temporarily abandoned location, C E½ SW SW 7-22n-9w, for No. 1 Abraham Busker.

Standard of Indiana to Honor 1,368 Employes With Service Awards

One thousand three hundred sixty-eight employes who have served a combined total of 22,000 years will be awarded gold service pins by Standard Oil Co. of Indiana during 1940, Pres. Edward G. Seubert announced this week.

Twenty employes will be given pins for 40 years of service each, 82 employes for 30 years, 608 employes for 20 years and 658 employes for 10 years.



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Operators Watch East Texas Border Tests During Lull

By GEORGE WEBER

SHREVEPORT, La., July 22.—A quiet week of drilling in the tristate district resulted in no developments of importance, although several wildcats are being closely watched. East Border Texas is gaining in interest, with Waskom tests active in northwest and southwest outpost positions. activity up in the Smithland field of Marion County, and wildcatting of importance beginning in Shelby County near Joaquin. Leasing has continued to increase in the border counties during the past several weeks. Bowie and Sabine counties also have active wildcat tests.

North Louisiana interest is directed to wildcats in widely separated sections, and to field development in the Olla field, La Salle Parish. Arkansas, with drilling at its lowest point in many months, has few wildcats active, and development is nearly at a standstill.

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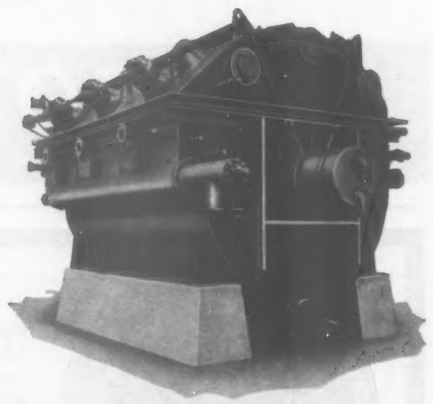

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FACTORIES: HAZLETON, PA. AND OAKLAND, CALIF.

East Texas

The Waskom field of Harrison County was extended 1½ miles to the southwest early in the week by completion of Arkansas-Louisiana Gas, 1-C Abney, James Shandoin Survey. The test, which last week showed oil on an initial production test, is reported to have gaged 6,000,000 cu. ft. of gas daily with a spray of oil, through perforations at 6,000-74 ft. This Travis Peak producer may be another gas-condensate well, similar to those in the field proper, as indicated by the gas-oil ratio. The same operators have begun No. 1-D Abney, three locations north and one location west of the No. 1-C Abney, and have staked location for No. 1 Armstrong, a northwest outpost test, and Union Producing Co. is drilling below 3,180 ft. in a 2½-mile southwest outpost to Waskom proper.

Shelby County has a new and important wildcat, Union Producing, 1 Garrett, a 5,500-ft. test in the Joaquin area, which is being drilled for Shell Oil Co. on a gas-rights basis. Another wildcat will be drilled by Union, across the state line in De Soto Parish, on the large Shell block. At latest reports, the Shelby County test was drilling below 1,653 ft. The Superior Oil Co. of Tulsa is drilling in the Shelbyville area, and to the south in Sabine County, Sterm & Womack are drilling below 4,200 ft. in No. 1 Kieth, ½ mile west of Pineland.

Bowie County, in the northeast corner of the state, has two active wildcat tests. W. E. Neill, 1 Lewis Fort, 2½ miles northeast of Hooks, in the L. Peters Survey, is reported to have a slight show of oil from a Schlumberger survey run to total depth of 2,320 ft. Shell Oil Co., Inc., is drilling below 5,700 ft. in No. 1 W. D. Wall, deep wildcat located 3 miles northwest of the town of Maud. Routine field drilling continues in the shallow Caddo and Smithland fields of Marion County.

Arkansas

Standard Oil Co. of Louisiana is nearing completion of No. 2 Sturgis, offset to its discovery well in the Fouke field, Miller County. The well is a disappointment in comparison with the discovery well, but upon swabbing, fluid level rose to within 300 ft. of the surface and early completion is expected. A string of 7-in. casing was set at 3,714 ft. and the Paluxy formation was perforated at 3,653-60 ft.

The same company's No. 1 Zimmerman, Union County, Smackover lime wildcat, plugged back from the Smackover after testing salt water in that formation, and this week, after plugging back to 7,250-7,540 ft. and drilling out plug to 7,324 ft., operators underreamed from 7,316-24 ft. for a drill-stem test of that section.

Columbia County's latest Smackover wildcat, Barnsdall, 1 El Dorado & Wesson R.R., 5-19-18, was abandoned during the past week at 8,760 ft. after testing salt water in the porous oolitic member of the Smackover lime. Dorcheat and Magnolia gained one new well each, and Nick Springs, in Union County, was slightly extended by a pumper.

EAST TEXAS BORDER COMPLETIONS

Waskom—Harrison County

Arkansas-Louisiana Gas, 1-C Abney, James Shandoin Survey, 6,000,000 cu. ft. of gas, spray of oil, total depth 6,233 ft., perforated casing at 6,000-74 ft.

Caddo—Marion County

T. B. Donnell, 1 E. W. Easterling, M. G. Nall Survey, dry, total depth 2,408 ft.

Smithland—Marion County

M. D. Fitzwater, 1 Carrie Moseley, Wm. H. Burton Survey, pumping 42 bbl., total depth 2,316 ft.
E. D. Markham, 2 Sid Hart, G. Coore Survey, pumping 70 bbl., total depth 2,380 ft.
Sanders & Wycliffe, 1 Sid Hart, G. Coore Survey, pumping 10 bbl., total depth 2,408 ft.

NORTH LOUISIANA COMPLETIONS

Caddo—Caddo Parish

Chastain & Meier, 1 Crystal fee, 24-21-16, pumping 25 bbl., total depth 1,012 ft.
R. B. Creager, 1-A Muslow, 31-21-15, pumping 15 bbl., total depth 1,569 ft.
Juan & McFatrick, 2-A Hobbs, 28-21-15, pumping 30 bbl., total depth 1,578 ft.
Texas, 24-B Noel, 14-21-15, 75 bbl. oil and 10 bbl. salt water, total depth 1,700 ft.

Monroe—Ouachita Parish

Interstate Nat. Gas, 98 fee, 44-19-3e, 3,000,000 cu. ft. of gas, rock pressure 850 lb., total depth 2,194 ft.

Zwolle—Sabine Parish

Major Oil, 1 Laroux, 36-8-13, total depth 2,630 ft., dry.

ARKANSAS COMPLETIONS

Wildcat—Columbia County

Barnsdall, 1 El Dorado & Wesson R.R. Co., NW SW 5-19-18, dry, total depth 8,715 ft.

(Continued on Page 208)

California Operations

By
L. P. STOCKMAN

Rio Bravo and Rosecrans Edge Wells Attracting Attention

LOS ANGELES, Calif., July 22.—The future status of the northwest end of the Rio Bravo field of Kern County from a production standpoint is expected to be determined within the next 10 days or 2 weeks and because of the numerous small holdings it is needless to say that the operations of Superior Oil Co. are being watched with considerable interest. The interest being manifested in the northwest end of the Rio Bravo field is due to a considerable difference of opinion regarding the merits of the field north and west of 28-28-25. Seismograph surveys indicate that the nose of the structure is plunging downward at a rapid rate and if this condition is found to be correct by actual drilling it removes considerable small holdings out of the picture. Superior Oil Co. which has several leases in the northwest end of the Rio Bravo field as well as considerable proved acreage elsewhere on the structure has reached a depth of 10,880 ft. in No. 1 Riggs, an outpost which is being drilled in the southwest corner of 21-28-25 and should know definitely within the next 300 ft. whether the Rio Bravo zone will be found where anticipated or whether the plunge of the structure will necessitate additional drilling. Superior Oil Co. is withholding all information regarding formation data and for this reason it is not known whether it has found the recognized markers. This well should reach the critical depth within 2 weeks, and with leases in the area north of No. 1 Riggs, Tide Water Associated Oil Co., Barnsdall Oil Co., Western Gulf Oil Co., Wilshire Oil Co., George F. Getty, Inc., and Superior itself are hoping that drilling operations will show the structure flattening out instead of dipping.

Production

Crude-oil production in California for the first 20 days of July has been averaging about 5,000 bbl. per day below production during the same time last month but is still considerably above the allowable fixed by the Conservation Committee of California Oil Producers. Current daily production of leading California oil fields follows:

	Barrels
Wilmington	84,650
Midway-Sunset	53,250
Kettleman North Dome	49,550
Long Beach	44,150
Ventura Avenue	33,250
Coalinga	27,325
Santa Fe Springs	26,625
Huntington Beach	25,350
Montebello	19,350
Santa Maria Valley	18,200

Promising Deep Test

California may be faced with another town-lot drilling program in the near future if No. 12-1 Athens of Thorley Oil Co. comes up to expectations and registers large commercial production. This well which is located around the edge of the Athens section of the Rosecrans field of Los Angeles Basin is at present standing cemented on top of the pay. A total of 156 ft. of oil sand was cored in this well but the company will limit its impending test to the lower 71 ft. which is exceptionally well saturated. This well which is bottomed in a good-looking oil sand at 8,016 ft. appears almost certain of showing excellent production providing there is sufficient gas present. Top of the oil sand was cored at 7,945 ft. and the next 71 ft. down to 8,016 ft. consisted of almost solid oil sand, there being very little shale in the interval. The sand cored in this well is the equivalent of the O'Dea zone now undergoing development in the Rosecrans field and in the area immediately south of the original field. Several excellent flowing wells have been completed here, where operators are developing an accumulation trapped against a fault which shows a northwest-southeast trend. Obviously, production is larger near the fault due to greater penetration of the oil sand and therefore the large wells completed during the past several weeks indicate that operators are moving closer to the trap.

Completion of No. 12-1 Athens of Thorley Oil Co., which is headed by Dr. Thorley of Los Angeles, would precipitate extensive development in an area that was intensively drilled back in 1924 and later following discovery of the field by Union Oil Co. Many of the wells drilled during the early days in the Athens section of the Rosecrans field were later abandoned or have been suspended for a number of years. A relatively few are still producing a small amount of crude oil on the beam. Discovery of a new deep productive zone in the Athens area will result in a revival of work and may lead to another town-lot development campaign. It is believed quite possible that the productive area will ultimately be found west and northwest of No. 12-1 Athens of Thorley Oil Co. although it is logical to assume that some production will also be found for a few blocks to the south. No. 35 Howard Park of Union Oil Co. definitely precludes the extension of this new zone very far to the south as this well, which is located about 4 blocks south of No. 12-1 Athens, was drilled to 10,397 ft. and failed to find production. No. 35 Howard Park of Union Oil Co. was spudded in September 21, 1937, and was abandoned February 10, 1938, after it failed to produce commercially from the upper zone after being plugged back to 4,970 ft.

Tupman

Richfield Oil Corp., which is pursuing an aggressive development program involving acreage of Kern County Land Co. in the Tupman field of Kern County in the San Joaquin Basin, completed two additional wells during the current week and should have two more ready for production tests within another 10 days. In 29-30-25, Richfield, 38-29-A Kern County Land flowed 1,200 bbl. of 33.2-gravity oil and 1,300,000 cu. ft. of gas per day from 9,000 ft. through two 1½-in. beans. This new well was finished with 384 ft. of 6⅝-in. liner perforated opposite the oil sand at 8,589-8,637 ft., 8,700-59 ft. and at 8,790-8,920 ft. In 30-30-25, Richfield, 78-30-A Kern County Land flowed 904 bbl. of 33.9-gravity oil and 740,000 cu. ft. of gas per day through two 1½-in. beans at 9,066 ft., plugged back to 8,955 ft. due to bottom water. Perforations were at 8,618-80 ft., 8,711-8,821 ft. and at 8,860-8,992 ft. Both wells were drilled under contract for Richfield Oil Corp. by Bell & Loffland. Richfield Oil Corp. is running 15 strings of tools in this field at the present time. Of this group four are drilling ahead between 3,000 and 4,000 ft.; two are making hole between 6,000 and 7,000 ft.; one is drilling ahead between 7,000 and 8,000 ft.; four are drilling between 8,000 and 9,000 ft. and four are nearing completion below 9,000 ft. In addition the company has six derricks standing for early work. Richfield's plans contemplate the completion of 100 wells in this field before the close of 1941 and with the field department running ahead of schedule the goal should be reached by the summer of next year. Completion of 100 wells will result in the addition of about 15,000 bbl. per day of new production under curtailment. This may vary one way or another depending upon the maximum top allowable set by the Conservation Committee of California Oil Producers, the curtailment group, from time to time.

Cole's Levee

In the Cole's Levee field of Kern County, Standard, 20-6 Kern County Land in 5-31-25, showed an initial production of 365 bbl. of 46.4-gravity oil and 3,700,000 cu. ft. of gas from 9,370 ft. This new well which has an elevation of 305 ft. above sea level was drilled to 9,502 ft. but was plugged back to the completion depth after drilling entirely through the producing zone. A gas sand cored at 8,622 ft. was cased off as the hole was finished with 848 ft. of 5¾-in. liner that was landed at 9,369 ft. and cemented through perforations at 9,244 ft. Perforations opposite the oil sand were at 8,658-9,185 ft. and 9,244-9,369 ft. The Cole's Levee and Tupman fields of Kern County were discovered along about the same time, Ohio Oil Co. completing the discovery well in the former area on November 11, 1938, and Richfield Oil Corp. finishing the discovery well in the Tupman field on November 27, 1938. These two fields which appeared for a time to consist of one major accumulation but which have since been identified as two separate accumulations are located on a bifurcated axis of the Elk Hills structure. Ohio No. 9-F, otherwise identified as well No. 47-3 Kern County Land in 3-31-25, will make a production test within the next few days from 9,264 ft. Top of the first oil sand was cored in this well at 9,057 ft. No. 10-F on the same lease is rotating ahead in a sandy shale at 6,960 ft. and will be completed below 9,000 ft.

Coalinga

R. S. Lytle, operating for Seaboard Oil Corp., Honolulu Oil Corp. and former stockholders of Petroleum Securities Co., completed two excellent wells in the Southeast Coalinga field of Fresno County this week. In No. 68-18-F a stray sand was found that may later be found productive in other parts of the field but for the present it has been classified as a stray sand. This sand was found when on a formation test at 7,452-7,522 ft. the well flowed a spray of 58.5-gravity oil and at the rate of 7,000,000 cu. ft. of gas daily. This sand is definitely not the true Gatchell sand. No. 68-18-F which is located in 18-20-16 was brought in flowing 2,122 bbl. of clean 28.3-gravity oil and 1,252,000 cu. ft. of gas per day from the Gatchell sand with bottom of the hole at 7,930 ft. The hole was carried down to 8,051 ft. but was plugged back before completion. The hole was finished with 534 ft. of 6⅝-in. drillable liner which froze at 7,894 ft. and left the lower 36 ft. of the hole barefoot. The liner carried 100-mesh perforations at 7,514-73 ft., 7,612-7,750 ft. and 7,834-94 ft. and was cemented through perforations at 7,823 ft. and at 7,509 ft. Production is flowing through 7,825 ft. of 2½-in. tubing and there is a Securaloy packer at 7,807 ft. and a bottom-hole choke at 7,805 ft. Top of the Kreyenhagen was cored at 6,262 ft., top of the glauconitic was found at 7,438 ft., top of the Gatchell was cored at 7,457 ft. and base of the Gatchell was logged at 8,043 ft. In 7-20-16, Lytle completed well No. 33-7-F flowing 1,975 bbl. of clean 28.2-gravity oil and 1,302,000 cu. ft. of gas per day from the Gatchell sand with bottom of the hole at 7,322 ft. This well was finished with 597 ft. of 6⅝-in. liner landed at 7,315 ft. and perforated at 6,804-63 ft., 6,903-7,079 ft., 7,120-7,220 ft., 7,280-7,322 ft. and found the base of the productive Gatchell sand at 7,315 ft.

Wilmington

Three small Ranger zone wells were completed in the Wilmington field of Los Angeles Basin during the current week. General Petroleum, 9 Blinn, located southwest of Pico and Anaheim Boulevard, flowed 70 bbl. of 14.3-gravity oil per day through a 32/64-in. bean from 3,360 ft. This new well was finished with 392 ft. of gravel packed 5¾-in. liner landed at 3,358 ft. and perforated at 3,023-3,358 ft. with 50-mesh perforations. Barnhart-Morrow Consolidated, 3 Wilmington Community flowed 380 bbl. of 17.2-gravity oil daily from the Ranger zone with bottom of the hole at 3,720 ft. This new well which was brought in flowing through a 1-in. bean was finished with 720 ft. of 5¾-in. liner landed on bottom and carrying perforations at 3,050-3,130 ft., 3,160-3,290 ft., 3,420-3,630 ft. and 3,660-3,720 ft. The 3,710 ft. of 2½-in. tubing had a packer at 3,030 ft. M. A. K. Petroleum, 4 Harbor flowed 140 bbl. of 14.1-gravity oil per day from 3,443 ft. This new well was finished with 338 ft. of gravel-packed liner landed on bottom and carrying perforations at 3,123-3,443 ft. The 3,440 ft. of 2½-in. tubing had a packer at 3,025 ft. Drilling operations appear to have settled down some-

what in the Wilmington field and no change is anticipated in the immediate future. The Ford zone in the Long Beach Harbor section of the field is being held back and to date no well in this section of the field has penetrated this virgin zone.

North Belridge

One new well and one recompletion were put on production in the North Belridge field of Kern County this week. The former was No. 4 Result of Continental Oil Co. in 36-27-20 which flowed 756 bbl. of 30.3-gravity oil and 2,280,000 cu. ft. of gas per day from the Wagonwheel zone of Eocene age at 8,294 ft. This well which cored top of the Temblor at 7,758 ft. and top of the Wagonwheel zone at 7,960 ft. was finished with 662 ft. of 5-in. liner landed at 8,293 ft. and perforated at 8,173-8,293 ft. The liner was cemented through perforations at 8,171 ft. The recompletion recorded this week was No. 3-35 fee of Belridge Oil Co. in 35-27-20. It was returned to production flowing 1,033 bbl. of 31.7-gravity oil and 9,895,000 cu. ft. of gas per day from the Wagonwheel zone with bottom of the hole at 8,290 ft. This well, which was redrilled from a whipstock set at 5,944 ft., was brought in barefoot as there is no liner or casing below the shoe of the 7-in. water string cemented at 8,110 ft. Production is flowing through 8,054 ft. of 2½-in. tubing behind tubing and casing pressures of 1,000 lb. each.

East Coyote

The East Coyote field where Bartholomae Oil Corp. proved up the existence of a new deep zone a few weeks ago is showing a revival of work after a dormancy of several years. For the past several months, operators have been pecking around the edge of the old field but completion of the discovery well in the new deep zone greatly stimulated interest and will undoubtedly lead to further work. During the current week, Master Petroleum, 1 Mathis pumped 435 bbl. of 23.4-gravity oil and No. 1 Lempke pumped 280 bbl. of 22.9-gravity oil per day from 4,262 ft. Both of these wells were completed originally several years ago but production has been rather intermittent. Hathaway Oil Co. has acquired the Johnson property in the east end of the field and has material on ground for a new derrick. Bryan-Pacific Oil Co. has cemented a string of 7-in. casing in No. 1 Coyote at 4,197 ft. and this well should be ready for a production test within another week or 10 days. Bartholomae Oil Co. has not made any further move to drill any additional wells to the deep zone discovered at 6,580 ft. and recent developments indicate the possibility that a deal may be made with Wilshire Oil Co. whereby the latter may undertake additional drilling after a survey of structural conditions. The discovery well of Bartholomae Oil Co. is at present flowing 425 bbl. of very clean 27.1-gravity oil per day which indicates that it is holding up in good shape.

Montebello

The Montebello field of Los Angeles Basin is sliding out of the picture so fast that it is questionable whether any additional wells will be started unless a new deeper productive zone is discovered. A few operators are going down to the 8-3 zone but only Kern Oil Co. appears to be having any success. Several weeks ago this zone looked very hot but today it is questionable whether it will pay operators for increased expenditures. Some relief has been had from the expanded gas cap and most operators are now making estimates to ascertain how many wells will pay out and whether deepening operations in others will prove remunerative. For several months the initial of new wells has been very small indicating that the zones are beginning to feel the pinch of overdevelopment. During the current week Kern Oil Co., which proved up the existence of deeper zones in the Montebello field, completed No. 42 Monterey a new well that was brought in flowing 525 bbl. of clean 36.4-gravity oil and 4,150,000 cu. ft. of gas daily from the La Merced and 8-3 zones with bottom of the hole at 7,870 ft. This new well was finished with a 7-in. string cemented at 7,625 ft. and then later gun perforated opposite the gas zone in the top of the La Merced zone at 7,475-7,590 ft. and 252 ft. of 5-in. liner landed at 7,866 ft. and perforated opposite the oil sand at 7,626-7,866 ft. Production is flowing through 7,594 ft. of 2½-in. tubing. Kern Oil Co. has completed No. 31

(Continued on Page 209)

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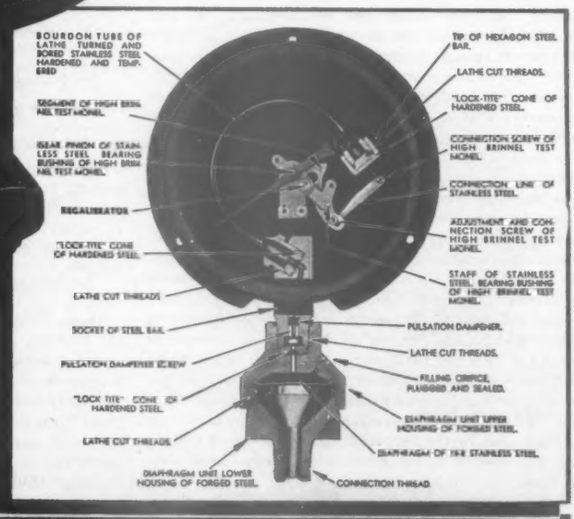
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Semiannual Report on Eastern Fields

(Continued from Page 162)

are pure wildcats though located on large structures, they mark the eastern frontier.

On Chestnut Ridge in North Union Township, Fayette County, one gas well was completed in the Oriskany sand at a point where there was a fault plane. For a time it had a showing in excess of 13,000,000 cu. ft. a day which soon blew down but it is still producing from the Oriskany and Onondaga chert beds. Another test is now drilling which should reach completion in August and still another commercial well from the Onondaga chert beds is being deepened to the Oriskany.

In Monongahela Township, Greene County, two very fair Injun sand gas wells were completed and another now drilling. Very little new reserves were added in Washington, Beaver, and Allegheny counties. In Armstrong County, Indiana, and lower Clarion County, much work was done with small wells from the Murrysville, Speechley, and Bradford sands.

EASTERN FIELDS

Summary of Wells Completed First Half of 1940

Field—	Comp.	Prod.	Dry	Gas
Bradford	1,619	4,075	0	0
Allegany	530	586	0	0
Middle district	82	110	7	4
Butler-Armstrong	35	61	8	10
Southwest Pennsylvania	130	122	32	83
Southeast Ohio	253	1,385	36	50
West Virginia	286	421	39	180
North Oriskany	40	0	28	12
Total	2,975	6,760	150	339

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	441	1,050	28	62
February	483	751	15	67
March	439	1,572	18	53
April	477	1,326	33	41
May	581	1,106	23	73
June	554	955	33	43
Total first half 1940	2,975	6,760	150	339
Total first half 1939	1,771	37,758	117	319
Difference	1.204	30,998	33	20

WESTERN KENTUCKY

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	25	980	11	0
February	21	600	9	0
March	20	280	13	0
April	32	478	21	0
May	28	590	14	0
June	50	784	30	1
Total first half 1940	176	3,712	98	1
Total first half 1939	236	7,670	133	14
Difference	60	3,958	35	13

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas
Allen	1	0	1	0
Breckenridge	5	0	4	1
Butler	10	40	3	0
Christian	1	0	1	0
Daviess	64	2,836	28	0
Hancock	17	110	10	0
Henderson	10	253	7	0
Livingston	3	0	3	0
Logan	2	0	2	0
McCracken	1	0	1	0
McLean	9	135	5	0
Meade	1	0	1	0
Muhlenberg	2	0	2	0
Ohio	47	338	27	0
Todd	2	0	2	0
Webster	1	0	1	0
Total	176	3,712	98	1

EASTERN KENTUCKY

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas
Floyd	14	0	0	14
Knott	10	0	0	10
Lawrence	2	10	0	1
Lee	2	15	0	0
Magoffin	3	10	1	0
Martin	19	108	0	15
Morgan	2	0	0	2
Pike	6	0	0	6
Powell	10	128	1	0
Total	68	271	2	48

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	2	0	0	2
February	8	60	1	5
March	9	55	0	7
April	12	4	0	11
May	17	92	0	8
June	20	60	1	15
Total first half 1940	69	271	2	48
Total first half 1939	96	375	16	45
Difference	28	104	14	3

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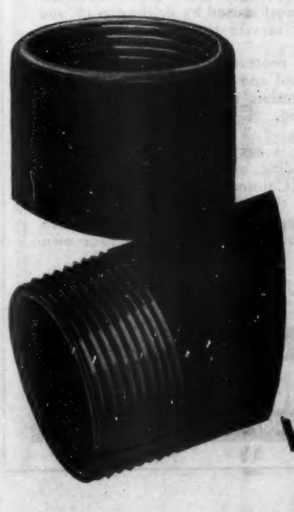

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INDIANA

Summary of Wells Completed First Half of 1940

County—	Comp.	Prod.	Dry	Gas
Daviess	5	25	3	1
Dubois	3	0	3	0
Gibson	49	4,349	16	0
Hancock	3	12	2	0
Huntington	1	0	1	0
Jay	2	14	1	0
Knox	6	0	6	0
Lagrange	1	0	1	0
Madison	1	0	1	0
Marion	2	10	0	0
Owen	3	0	3	0
Perry	1	0	1	0
Pike	2	0	2	0
Posey	40	3,634	8	0
Spencer	36	136	15	15
Sullivan	6	0	6	0
Vanderburg	6	50	4	1
Warrick	3	0	3	0
Randolph	1	0	1	0
Vigo	2	0	2	0
Vermilion	1	0	1	0
Clay	1	0	1	0
Putnam	2	0	2	0
Wayne	1	0	1	0
Clark	1	0	1	0
Hartman	1	0	1	0
Jackson	1	0	1	0
Martin	2	0	2	0
Porter	1	0	1	0
Decatur	3	0	3	0
Ripley	1	0	1	0
Floyd	1	0	1	0
Fountain	1	0	1	0
Greene	1	0	1	0
Jasper	1	0	1	0
Total	192	8,230	98	17

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	29	2,160	9	3
February	19	724	8	3
March	31	1,150	15	2
April	31	1,265	15	4
May	43	985	26	5
June	37	1,956	20	3
Total first half 1940	190	8,240	93	20
Total first half 1939	102	5,115	52	16
Difference	88	3,125	41	4

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OHIO FIELDS

Summary of Wells Completed First Half of 1940

County—	Completed	Oil wells	Production	Dry holes	Gas wells
Ashland	3	0	0	2	1
Athens	34	3	25	13	18
Belmont	5	0	0	1	4
Carrol	1	0	0	0	1
Columbiana	3	0	0	3	0
Coshocton	6	3	259	3	0
Cuyahoga	7	1	31	2	4
Fairfield	7	1	10	3	3
Franklin	1	0	0	1	0
Gallia	2	0	0	0	2
Greene	1	0	0	1	0
Guernsey	23	2	9	10	11
Hancock	2	0	0	1	1
Harrison	1	0	0	1	0
Henry	1	1	10	0	0
Hocking	2	2	70	0	0
Holmes	3	0	0	2	1
Jackson	1	0	0	0	1
Jefferson	10	4	9	3	3
Knox	20	3	129	6	11
Lawrence	4	0	0	0	4
Licking	63	10	121	19	34
Lorain	18	3	55	12	3
Medina	98	69	732	23	6
Meigs	10	1	5	5	4
Monroe	22	6	25	10	6
Morgan	12	3	22	6	3
Muskingum	15	3	70	5	7
Noble	37	12	26	13	12
Perry	26	13	320	4	9
Ptunam	1	1	20	0	0
Seneca	2	0	0	1	1
Stark	8	0	0	1	7
Summit	4	0	0	1	3
Tuscarawas	8	0	0	4	4
Vinton	1	0	0	0	1
Washington	33	14	100	9	10
Wayne	5	0	0	5	0
Wyandot	1	0	0	1	0
Total 6 mos. 1940	501	155	2,048	171	175

Completions by Months

Month—	Comp.	Oil	Prod.	Dry	Gas
January	57	8	85	21	28
February	59	20	340	14	25
March	72	22	221	27	23
April	92	31	467	28	33
May	117	46	601	39	32
June	104	28	334	42	34
Total 6 mos. 1940	501	155	2,048	171	175
Total 6 mos. 1939	434	67	1.317	146	221
Difference	67	88	731	25	46

SOUTHEAST OHIO

Completions by Months First Half of 1940

Month—	Comp.	Prod.	Dry	Gas
January	40	29	8	12
February	32	264	3	10
March	31	115	4	6
April	48	331	9	7
May	58	395	9	9
June	44	251	7	6
Total first half 1940*	253	1,385	40	50
Total first half 1939	152	708	28	74
Difference	101	677	12	24

*Includes 33 input wells repressuring.

SOUTHWEST PENNSYLVANIA

Completions by Months First Half of 1940

Month—	Comp.	Prod.	Dry	Gas
January	26	16	7	15
February	20	30	5	12
March	20	5	5	14
April	18	10	4	10
May	30	60	6	22
June	16	1	5	10
Total first half 1940	130	122	32	83
Total first half 1939	63	47	14	44
Difference	67	75	18	39

WEST VIRGINIA

Completions by Months First Half of 1940

Month—	Comp.	Prod.	Dry	Gas
January	49	109	7	33
February	51	56	4	37
March	48	56	5	30
April	37	73	8	19
May	50	84	4	37
June	51	93	14	24
Total first half 1940	286	471	42	180
Total first half 1939	234	271	31	170
Difference	52	200	11	10

La.-Ark. Fields

(Continued From Page 204)

Dorcheat—Columbia County

Mid-Continent, 1 J. Keith, SW NW 16-18-22, salt water, total depth 8,913 ft.

Magnolia—Columbia County

Standard of Louisiana, 3-B Longino, SW SE 18-17-19, 192 bbl., ¼-in. choke, tubing pressure 1,075 lb., casing pressure 1,700 lb., total depth 7,583 ft.

Wildcat—Union County

J. H. Coker and J. P. Grieves, 1 C. L. Smith, SW NE SW 32-17-14, dry, total depth 3,541 ft.

Nick Springs—Union County

Fohs, 1-A Grace, E½ SW SE 31-17-14, pumping 65 bbl., with estimated 100,000 cu. ft. of gas, total depth 3,766 ft.

Louisiana Gulf Coast

(Continued from Page 200)

Texas, 7-A Madison Realty Co., perf. casing 4,410-20 ft., 136 bbl., ¼-in. choke.

La Fourche Parish

Golden Meadow field: Texas, 14 Falgout Holding Corp., sand 7,910-40 ft., 422 bbl., 5/32-in. choke.

St. Bernard Parish

Kenilworth field: Vendome Petroleum, 3 Kenilworth, 11,419 ft., dry.

St. Landry Parish

Port Barre field: Texas, 29 Botnay Bay, perf. casing 6,000-22 ft., 731 bbl., ¼-in. choke.

St. Martin Parish

Anse La Butte field: Glassell & Glassell, 2 Moresi, 4,588 ft., 324 bbl., 12/64-in. choke.
Stanolind, 1 Bergeron, sand 3,237-3,317 ft., 246 bbl. in 14 hours, ¼-in. choke.

NEW LOCATIONS

Acadia Parish

North Crowley field: Vicent & Welch, 1 Harmon, 27-8s-1e.

Beauregard Parish

Bancroft field: Republic Production, 19 Columbia Land Co., 15-6s-13w.
Neale field: Atlantic, 1 Kay unit, 23-3s-11w.

Cameron Parish

West Hackberry field: Stanolind, 23 Cameron Parish, 16-12s-10w.
Superior, 3 Vicent, 31-12s-10w.

Evangeline Parish

Ville Platte field: Continental, 5 Corell, 48-3s-2e.
Continental, 1 Fontenot, 44-2s-3e.
Danciger Oil & Refining, 1 Hirsch, 39-4s-2e.

Iberville Parish

Bayou Bouillon field: Superior, 1 Iowa-St. Martin, 25-9s-8e.
Bayou Choctaw field: Standard of Louisiana, 9 Gray, 52-9s-11e.
Happytown field: Shell, 2 Iberville Land Co., 87-7s-8e.

Jefferson Parish

Lafitte field: Texas, 7-A Madison Realty Co., 20-17s-24e.

Jefferson Davis Parish

South Roanoke field: Continental, 3 Calcasieu National Bank, 36-10s-4w.

La Fourche Parish

Golden Meadow field: Temple Hargrove, 9-19s-22e.
Texas, 15 Falgout Holding Corp., 9-19s-22e.
Texas, 17 Falgout Holding Corp., 9-19s-22e.
Leeville field: Texas, 74 Leeville, 27-21s-22e.

Plaquemines Parish

Wildcat: Gulf, 1 State Black Q. Q., Township 17s-17e.

St. Martin Parish

Anse La Butte field: O. W. Dyer, 1 Sander, 71-9s-5e.
Glassell & Glassell, 3 Breaux, 71-9s-5e.
Plumb Bob field: Texas, 15 St. Martin Land Co., 21-8s-7e.

St. Mary Parish

Charenton field: Commerce, 1 Viguerie, 30-13s-9e.
Horseshoe Bayou field: Texas, 4 St. Mary Parish, 37-17s-9e.

Terrebonne Parish

Lake Pelto field: Texas, 33 State, 17-23s-18e.

California Fields

(Continued from Page 206)

Monterey at 7,865 ft. with 395 ft. of blank 5-in. liner which was cemented at 7,865 ft. and plans are now under way to gun perforate and put the well on production.

Rosecrans

Thomas Kelly & Sons this week completed No. 3 McMillen in the Rosecrans field of Los Angeles Basin and this new well, like its immediate predecessors, showed large production. It was brought in through open line after being finished in the O'Dea zone with bottom of the hole at 7,821 ft. and started off flowing 1,750 bbl. of clean 32.1-gravity oil per day along with 1,000,000 cu. ft. of gas. Not all wells completed in the Rosecrans field have shown large production as those located too far away from the fault in the west side of the area have not been able to secure a favorable penetration in the oil sand. St. Anthony Oil Co., which recently completed a large flowing well in the southwest end of the Rosecrans field, is just about ready to spud in No. 4 Gordon as rotary-drilling equipment is practically all in place. Southern California Petroleum Co., another operator which was successful in completing a large well recently, is making preparations to spud in No. 13 Maxwell within the next 24 hours. No. 1 Van Nuys of this company ran into mechanical trouble at 5,211 ft., resulting from stuck drill pipe, but the company is successfully cutting and pulling. It may be necessary to redrill unless a speedy recovery is effected.

San Joaquin Valley

In the Rio Bravo field, Superior Oil Co. has completed No. 2 Rudnick flowing 1,515 bbl. of clean 38.8-gravity oil and 2,076,000 cu. ft. of gas per day from the Rio Bravo zone with bottom of the hole at 11,460 ft. This company is also completing No. 2 Roe in 27-28-25

ROYALTIES and other payments by the oil fraternity have made many families "rich," putting literally millions of dollars into circulation. The Banks of Fort Worth are proud of the part they have played in furthering this vital industry through having placed their facilities at the disposal of both landowners and oil men.

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after topping the oil sand at 11,139 ft. In the Fruitvale field of Kern County, Mesa Petroleum Co. has recompleted No. 1 Dixon in 23-29-27 pumping 75 bbl. of clean 22.3-gravity oil per day from 3,614 ft. This well was deepened through 6⅝-in. liner from 3,115 ft. to bottom. Top of the Martin sand was found at 3,242 ft. and top of the productive Kernco sand was cored at 3,495 ft. Trico Oil & Gas completed another good gas well in the Delano gas field of Kern County when No. 1 fee in 22-24-23 was brought in flowing 34,002,000 cu. ft. of gas per day from 2,502 ft. This well was finished with a 6⅝-in. water string cemented at 2,432 ft. and 92 ft. of 5-in. liner carrying 80-mesh perforations at 2,440-2,502 ft. and 2,405 ft. of 1½-in. tubing. No. 35-22 Daniel of Tide Water Associated Oil Co. in the Delano district of Kern County has reached a depth of 10,660 ft. but has not yet found any oil sand. The upper Vedder sand was found barren at 10,315 ft. and at the present depth the lower Vedder is carrying gray sand along with some stringers of oil sand. It is the present intention to carry this well down for a look at the Eocene which is expected to be found around 11,250 ft.

World Crude-Oil Production
6,000,000 Barrels Daily

(Continued from Page 56)

the political situation clears. Nevertheless, the restrictions on free trade from more distant sources placed a heavier call on petroleum from the East Indies, resulting in an increase of a little more than 5 per cent. Since the European conflict entered its more critical stage new investment in the Netherland East Indies' oil fields has been reduced to the minimum. Virtually no exploration is being attempted and only routine producing and refining operations are being continued. There is a minor amount of drilling on inside locations but the interested companies are projecting their views over a narrow range. Japan has long coveted the petroleum resources in the East Indies. Tentative gestures for establishing a "protectorate" over the Netherland East Indies have been frowned upon by the United States and other major powers. While nothing tangible has been attempted by Japan with respect to the East Indies, potentialities of the situation dictate caution in expansion of petroleum investments.

The increases in production from all but one South American country are all the more impressive because they were registered in the face of severe restrictions in the important markets. Most of the gains in South America, outside of Trinidad which was geared early to wartime tempo, came during the last two-thirds of the half year. The other exception to this generally is Mexico, which lost a substantial customer in Europe when Italy entered the war in June. British control of Gibraltar has prevented movement of Mexican oil to Italy in recent weeks which prior to June amounted to approximately 15,000 bbl. daily. Mexico increased its crude-oil production almost 12 per cent in the first half. Part of the increased Merican output came to the United States for refining and reexport but the domestic market absorbed more oil the first half of this year than in previous similar post-expropriation periods.

From a percentage standpoint the higher production from Saudi Arabia was the most spectacular development of the first half. In climbing from 1,180,000 bbl. in the first half last year to 2,589,000 bbl., Saudi Arabia increased its production 119 per cent. Only a little less impressive was Hungary with a gain of 114 per cent. Neither Saudi Arabia nor Hungary, however, produce sufficient oil to be factors in the world situation.

Gains in production by practically all countries outside the U. S. were made without benefit of discoveries that can be claimed by the first half of this year. In some instances the past 6 months represents the first period of such length that commercial production has been withdrawn. For example, the Oficina field in southern Venezuela was brought to the shipping stage only in the last quarter of 1939. Currently, the Oficina, El Roble, San Joaquin and Santa Ana fields are producing at the combined rate of 50,000 bbl. daily which reaches world markets through the 16-in. trunk pipe line terminating at Puerto la Cruz on the northern coast. This volume represents new oil that was not in commercial exploitation for the comparable period in 1939. The Jusepin field developed by Standard Oil Co. of Venezuela in the State of Monagas was provided with pipe line to a new 30,000-bbl. refinery at Caripito late last year and consequently the output of that area largely represents new oil. A similar condition exists in Colombia, where the Barco concession is producing 15,000 bbl. daily through a 12-in. line to the western coast of that country.

At least a substantial portion of the increase in output from Argentina is coming from the Tupungato field in the Province of Mendoza. Since the turn of the year the Tupungato field has been developed into one of the most prolific in Argentina. Maximum exploitation will be delayed until 1941 when the government company, Yacimientos Petroliferos Fiscales, plans to start operation of a trunk line projected to the Atlantic seacoast, probably terminating at Comodoro Rivadavia. During the first few months of the year Y.P.F. increased its production more than 15 per cent over 1939, and private companies registered a minor gain of about 1 per cent.

Production from Venezuela for the first few weeks of the half year was substantially below the average for the period. Preparations were made in the last quarter of 1939 to supply an anticipated spurt in European demand for war purposes. When the war demand failed to materialize deep cuts were made in production until movement became somewhat stabilized. In the final few weeks of the first half the actual production ran up to a peak of 615,000 bbl. daily.

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WILDCAT OPERATIONS

OKLAHOMA

Week Ended July 20

NORTHERN OKLAHOMA

Hughes County

Loual Drlg. Co.'s No. 1 Jackson, C SW NE Sec. 24-9-9. T.D. 3,303 ft.; P.B. 2,575 ft.; est. 1,000,000 cu. ft. gas.
Walker et al's No. 1 Hawthorne, SW SW SE Sec. 19-7-10. S.D. 890 ft.

Kiowa County

Gene Burke's No. 1 Morgansen, NW NW SW Sec. 6-2-16w. S.D. 830 ft.; rprs.
Southwestern Okla. O. & G.'s No. 2 Foltz, NW SE SE Sec. 10-6-18w. Drld. cmt. 1,645 ft.
Tice Prod.'s No. 1 Fowler, SE SE NW Sec. 10-7-18w. Drlg. 1,680 ft.

Lincoln County

Vierson O. & G.'s No. 1 Bell, SW SW NE Sec. 5-14-5. Drlg. 2,410 ft.
H. F. Wilcox' No. 1 Murphy, NE SE SW Sec. 7-14-6. R.U.R.

Muskogee County

Garrett's No. 1 Reinhart, SE cor. Sec. 15-13-17. Drlg. 650 ft.
Metzgas et al's No. 1 Springer, SE SE NW Sec. 12-13-17. Drlg. 1,090 ft.

Okfuskee County

Burke-Greis' No. 1 Dew, NE NE NE Sec. 9-12-9. Prue 1,810 ft.; Hntn. 3,888 ft.; pay 3,906 ft.; F. 72 B.O.P.D.
Reese Drlg.'s No. 1 Berryman, NW SW SW Sec. 36-11-8. S.O. in Crom. 3,462 ft.; F. 72 B.O.P.D.
Texas Co.'s No. 1 Cowan, SW cor. Sec 5-11-10. Hntn. 3,646 ft.; 1st Wlx. 3,879 ft.; 2nd Wlx. 3,903 ft. P.B. 3,730 ft.; S.O. in Hntn.

Oklahoma County

Continental Oil Co.'s No. 1 Renund, SE SE NE Sec. 24-14-4w. Drlg. 5,701 ft.

Okmulgee County

Sheridan Oil Co.'s No. 1 Hayden, NE NW SW Sec. 4-15-12. Drlg. 510 ft.

Pontotoc County

Kerlyn Oil Co.'s No. 1 Chism, NW SE SE Sec. 24-5-6. S.O. 1,940-70 ft.; T.D. 2,173 ft.; P.B. 1,972 ft.
Ramsey Pet. Co.'s No. 1 McFarland, NE NE SE Sec. 2-4-7. Glc. 1,959 ft.; Crom. 2,554 ft.; T.D. 2,602 ft.; S.D.O.
Sandback et al's No. 1 Statler, NE cor. Sec. 26-5-6. T.D. 2,007 ft.; P.B. 1,903 ft.; F. 4 B.O. in 24 hrs.; est. 6,500,000 cu. ft. gas; comp.

Pottawatomie County

J. F. Smith's No. 1 Brown, NE SE SE Sec. 6-7-4. Drlg. 2,410 ft.

Seminole County

Davis et al's No. 1 Thlocco, NW SW NW Sec. 30-7-7. T.D. 2,274 ft.; drld. cmt.; H.F.O.; S.I. for tanks.

Washita County

Continental Oil Co.'s No. 1 School ld., C NE Sec. 16-8-16w. Drlg. 7,906 ft., gr. wsh.

SOUTHERN OKLAHOMA

Atoka County

Kirksey's No. 1 Baskett, SW SE SE Sec. 7-3s-10e. T.D. 860 ft.; fsg.
Thompson Bros.' No. 1 Richardson, NE SE SW Sec. 10-3s-9. Hntn. 1,230 ft.; S.O. 1.259 ft.; drlg. 2,100 ft.

Marshall County

May Oil Corp.'s No. 1 Sacrea, SW NE SW Sec. 17-5s-5. Drlg. 1,734 ft.

Tillman County

Kadane Bros.' No. 1 Andrews, NW cor. Sec. 35-2s-19w. Drlg. 5,485 ft.

Kearny County

Stanolind O. & G. Co.'s No. 1 Judd, C SE SE Sec. 15-21-38w. S.D. 4,870 ft.

Kingman County

Sage et al's No. 1-A Carlson, CWL SW SW Sec. 21-30-7. Drlg. 315 ft.

McPherson County

Bay Pet. Co.'s No. 1 Coons, C W½ SW SW Sec. 13-19-1w. Lans. 2,312 ft.; Miss. 2,906 ft.; T.D. 3,425 ft.; P.B. 2,922 ft.; est. 4,000,000 cu. ft. gas.
Broadwater, Inc.'s No. 1 Heaton, C E½ SE SE Sec. 28-17-1w. Tpka. 1,558 ft.; base Miss. 2,905 ft.; drlg. 2,960 ft.
Imo O. & G.'s No. 1-A Eveleigh, CEL SW NE Sec. 3-18-4w. Lans. 3,126 ft.; cg. 3,198 ft.

Pratt County

Cities Service's No. 1 Lehrling, NE SW SW Sec. 19-27-11w. W.O.C. 835 ft.
Herndon Drlg.'s No. 1 Montgomery, CEL SW Sec. 13-27-13w. Drlg. 3,540 ft.
Marylyn Oil et al's No. 1 Jackson, CEL NE NW Sec. 1-27-13w. Loc.

Rooks County

Mitchell Drlg. Co.'s No. 1 Vererka, CSL SE SE Sec. 21-8-19w. Tpka. 2,783 ft.; Lans. 3,174 ft.; S.S.O. 3,333 ft.; Arb. 3,428 ft.; T.D. 3,435 ft.; B. 3 B.O.P.H.
Aylward Prod. Co.'s No. 1 Richards, C N½ NW SW Sec. 31-10-18w. Sur.
Wakefield et al's No. 1 Diehle, C N½ NW NW Sec. 4-9-17w. Tpka. 2,885 ft.; Lans. 3,140 ft.; Arb. 3,461-90 ft., T.D.; D.&A.

Russell County

Gussman's No. 1 Mudd, CWL NW NE Sec. 16-15-15w. Lans. 3,038 ft.; Arb. 3,300 ft.; H.F.W.; T.D. 3,343 ft.; D. &A.
Pryor & Lockhart's No. 1 Davidson, C E½ NE NW Sec. 12-15-11w. Drlg. 2,585 ft.

Sedgwick County

G. A. Fuller's No. 1 Stitt, CSL SE NE Sec. 21-27-1w. K.C. 2,652-2,806 ft., T.D.; P. 1 B.O. and 6 B.W.P.H.

Stafford County

Seaney et al's No. 1 Boyd, C W½ SW SW Sec. 4-21-14w. Loc.
Shell's No. 1 Bean, SE SE SW Sec. 21-23-12w. Loc.
Stanolind's No. 1 Ahnert, C W½ SE NE Sec. 10-22-12w. Lans. 3,270 ft.; Lans. 3,470 ft.; Arb. 3,630-35 ft., T.D.; S. 14 B.O. in 5 hrs.
Stanolind's No. 1 Roscoe, C N½ NE SE Sec. 15-24-12w. Tpka. 3,010 ft.; Lans. 3,470 ft.; Simp. 3,935 ft.; Arb. 3,994-96 ft.; S.O.

KANSAS

Week Ended July 20 (Descriptions are East unless marked otherwise)

Barber County

Sinclair-Prairie Oil Co.'s No. 1 Binning, C S½ SE SW Sec. 26-32-13w. Tpka. 3,045 ft.; Lans. 3,930 ft.; Miss. 4,430 ft.; Vla. 4,769 ft.; Simp. 4,857 ft.; Arb. 4,975 ft.; cd. to 5,004 ft.; N.S.; T.D. 5,083 ft.; D.&A.

Data on important California wells are omitted this week. Data on other wildcats and important drilling wells may be found in the "Field Operations" section in the case of those areas which are omitted from this section of The Oil and Gas Journal. For the greater convenience of the reader, the "Field Operations" section and the "Wildcat Operations" section are being consolidated into a single section which will deal with important developments, completions and drilling operations under a single head.

New sections devoted to Indiana, Ohio and Kentucky, and to Louisiana Gulf Coast have been separated from other areas and southeastern New Mexico has been grouped with West Texas and the Texas Panhandle into a single section under the title "Permian Basin, Panhandle." At the same time, the closely related fields of the Wichita Falls district and the West Central Texas district have been grouped together with those of eastern Texas under the head "North Central, East Texas."

Transwestern Oil's No. 1 Buck, C S½ SW NE Sec. 35-30-14w. W.O.C. 246 ft.

Barton County

Bradley Oil Co.'s No. 1 Dolechek, SE SE NE Sec. 13-16-11w. R.R.
Carlock et al's No. 1 Hammer, CNL NE NW Sec. 35-19-12w. Drlg. 2,935 ft.
Robertson's No. 1 Miller, CWL SW NE Sec. 4-16-14w. Drlg. 2,505 ft.
Wakefield et al's No. 1 Staatz, C S½ SE SW Sec. 23-17-11w. Ponds.

Butler County

Jocelyn et al's No. 1 Hall, CSL NE SW Sec. 7-29-7. Drlg. 1,600 ft.
McDaniel's No. 1 Eckel, NW NE NW Sec. 7-27-7. Drlg. 1,115 ft.

Cowley County

McKnab's No. 1 Lemert, CWL NW SE Sec. 11-34-4. Miss. 3,078 ft.; Arb. 3,568-89 ft., T.D.; H.F.W.; P.B. 3,100 ft.; 3,000,000 cu ft. gas per day; comp.
Trees Oil's No. 1 Orr, NW NE NW Sec. 17-30-4. Base Miss. 3,170 ft.; Arb. 3,261 ft.; T.D. 3,270 ft.; D.&A.

Douglas County

Forrester et al's No. 1 Altenbernd, CSL NW Sec. 35-12-20. S.D. 1,370 ft.
Forrester et al's No. 1 Ice, SW SW SE Sec. 9-14-19. Drlg. 630 ft.

Ellis County

Gulf Oil Corp.'s No. 1 Arnhold, C N½ NE SE Sec. 36-13-17w. Lans. 3,258 ft.; Arb. 3,541 ft.; drlg. 3,565 ft.

Ellsworth County

Billings' No. 1 Vanek, SW SW SE Sec. 25-14-10w. Drlg. 1,500 ft.
Cities Service's No. 1 Essick, NE cor. Sec. 25-16-8w. M.I.M.
Duwe & Farris' No. 1 Williams, C N½ NW SE Sec. 18-17-8w. R.R.

Greenwood County

Rex & Morris' No. 1 Jahren, NW NE SE Sec. 29-25-8. Drlg. 2,140 ft.

Jefferson County

McLaughlin's No. 1 Frazier, C SW NE Sec. 22-9-18. Drlg. 820 ft.

ARKANSAS

Columbia County

Berkshire Oil Co.'s No. 1 H. C. Couch, C N 30-ac., SE SE Sec. 22-17-20. Drlg. 1,250 ft.
McAlester Fuel Co.'s No. 1 K. J. Sayers, C NW NE Sec. 15-18-22. Set 13⅜-in. csg. 390 ft.; W.O.C.
Placid Oil Co.'s No. 2-B J. W. Booth, C SW SW Sec. 20-17-19. R.U.
Tide Water Asso. Oil Co.'s No. 1 E. M. Hutcheson, 330 ft. S, 1,320 ft. NE cor. SE Sec. 16-18-19. Set 9⅝-in. csg. 2,525 ft.; drlg. rd. sdy. sh. 6,729 ft.

Lafayette County

Atlantic Ref. Co.'s No. 2 Bodcaw Lbr. Co., C SW SE Sec. 29-17-23. R.U.
East Texas Ref. Co.'s No. 2 Bodcaw Lbr. Co., 530 ft. S, 660 ft. E, NW cor. NE NE Sec. 19-18-23. Set 5½-in. csg. 3,365 ft.; T.D. 3,451 ft.; swbd. well; would not flow; acd.; hole full S.W.; S.D.; W.O. pmp.

Lonoke County

Lunnon Howell & Ford's No. 1 City of Cabot, C NE Lot 1, Blk. 6, Sec. 18-4n-9w. Set 4¾-in. csg. 878 ft.; sd. reported S.O. 1,273 ft.; setting csg. 1,283 ft.

Miller County

Standard Oil Co. of La.'s No. 2 W. P. Sturgis, 330 ft. SE cor. NE SW Sec. 1-17s-27w. Acd. 3.570-74 ft.; set 7-in. csg. 3,714 ft.; T.D. 4,081 ft.; swbd. down to 1,700 ft.; fluid level down 700 ft.; swbg.

Nevada County

Benedum & Trees Oil Co.'s No. 1 G. Christopher, 1,650 ft. W, 990 ft. N, SE cor. Sec. 11-14-20. Drlg. 1,860 ft.
Berry Asphalt Co.'s No. 1 W. E. Meadows, Sec. 4-14-20. Set 10-in. csg. 40 ft.; 7-in. 1,173 ft.

Saline County

Tedford Drlg. Co. et al's No. 1 Cunningham, C SW NE Sec. 31-3s-15w. Set 12½-in. 75 ft.; set 10-in. csg. 285 ft.; S.D. 330 ft.
Tedford Drlg. Co.'s No. 1 Williams, 1,295 ft. SE of No. 1, Sec. 31-3s-15w. Set 12½-in. csg. 62 ft.; S.D. 218 ft.

Union County

Fohs Oil Co.'s No. 2 C. T. Grace, 330 ft. NW cor. SW SE Sec. 31-17-14. Set 7-in. csg. 3,120 ft.; cg. 3,712 ft.
Marine Oil Co.'s No. 12-A Thompson, 250 ft. NW cor. SW SE Sec. 3-18-13. Drlg. 2,650 ft.
Sam Sebersky's No. 1-B G. N. Jerry, C SW SW Sec. 21-17-14. T.D. 2,916 ft.; S.D.; W.O.
Standard Oil Co. of La.'s No. 1 D. A. Zimmerman, 660 ft. SE cor. SE SE Sec. 29-18s-16w. T.D. 7,855 ft.; P.B. 7,250-7,540 ft.; U.R. 6,708-20 ft.; D.S. tstg.

LOUISIANA

NORTH LOUISIANA

Bienville Parish

Ark.-La. Gas Co.'s No. 1-C Thomas, 710 ft. N, 1,273 ft. E, SW cor. NW Sec. 24-16-10. Set 9⅝-in. csg. 1,229 ft.; T. Pettit L. 5.260 ft.; set 5½-in. csg. 5,365 ft.; perf. 5,322-52 ft.; tstg.
Union Prod. Co.'s No. 1 Havis Unit, 150 ft. N and W of SE line NW NW Sec 11-16-10. Set 9⅝-in. csg. 1,326 ft.; drlg. L.&sh. 4,467 ft.

Bossier Parish

L. K. McGriffin's No. 1 Tomlinson, 990 ft. S, 600 ft. E, C Sec. 16-18-11. Set 10-in. 40 ft.; drlg. 1,116 ft.
R. L. Reese et al's No. 1 Bellevue Ld. Co., 170 ft. E, 385 ft. N, C Sec. 27-20-11. Set 10-in. csg. 100 ft.; reported S. O. in Tokio 2.672-88 ft.; D.S.T. 2,665-2,705 ft.; cg. 2,852 ft.
T. G. Shaw, Tr.'s No. 1 Mehaffey, Sec. 27-19-11. T.D. 3,003 ft.; P.B.; set 7-in. csg. 425 ft.; W.O.C.
Triangle Drlg. Co.'s No. 8-C Skannal, C NE NE Sec. 13-17-12. Set 5½-in. 3,146 ft.; por. L. 3,090-98 ft.; W.O.C. 3,158 ft.

Caddo Parish

F. W. Bennett's No. 1 Askew, Sec. 28 21-15. Drlg. 150 ft.
J. M. Conner's No. 1-A Williams, 334 ft. N, 986 ft. W, SE cor. NE Sec. 3-15-15. Set 10¾-in. csg. 400 ft.; D.S.T. 5,138-49 ft.; tstd. 500 ft. S.W. and 100 ft. mud cut with oil; fsg. 5,580 ft.
W. C. Curry's No. 1 Spell et al, Sec. 28-21-15. R.U.
C. W. Crockett's No. 1 Tobin et al, Sec. 11-20-16. Set 7-in. csg. 1,361 ft.; tstg. 1,531 ft.
Lloyd A. Farr's No. 6 Stiles, Sec. 17-21-16. Set 10-in. csg. 40 ft.; W.O.C.
L. Halbfass' No. 1-B Knight Oil & Ld. Co. Sec. 1-21-16. Set 10-in. csg. 60 ft.; T.D. 2,381 ft.; P.B. 1,040 ft.; set 6-in. csg. 990 ft.; tstd. S.W. 1,040 ft.; W.O.
A. R. Hancock's No. 8 Standard Oil Co., Sec. 18-21-15. R.U.
R. B. Hollandsworth's No. 1 Sentell, 1,650 ft. N, 660 ft. E, SW cor. Sec. 35-20-14. Set 10-in. csg. 117 ft.; W.O.C.
Magnolia Pet. Co.'s No. 23 Doan-Thigpen, Sec. 6-20-15. D.S. stk. 1,340 ft.
Marion Oil Co.'s No. 8 Hart, Sec. 22-21-16. Drlg. 1,780 ft.
Morris Co.'s No. 1 Caddo O. & M. Co., Sec. 12-20-16. Set 6-in. csg. 1,343 ft.; W.O.C. 1,520 ft.
T. H. Smith's No. 1 Handschumacher, Sec. 18-21-15. Drlg. 310 ft.
E. A. Stiller et al's No. 4 Stiles, Sec. 28-21-16. W.O.S.R. 2,386 ft.

L. L. Sugar's No. 1-A Muslow, Sec. 31-21-15. Set 7-in. csg. 1,380 ft.; losing returns 1,580 ft.
Texas Co.'s No. 25-B Noel, Sec. 14-21-15. R.U.
G. A. White's No. 1 Muslow, Sec. 31-21-15. Set 10-in. csg. 40 ft.; 7-in. csg. 1,405 ft.; T.D. 1,550 ft.; acd. 4,000 gal.; tstg.

Catahoula Parish

H. L. Hunt's No. 1-A La. Central, C SW SW Sec. 26-10-6e. Set 10¾-in. csg. 200 ft.; reported S.G. 890 ft.; drlg. sh. 2,360 ft.

Claiborne Parish

Ohio Oil Co.'s No. 15 G. W. Taylor Acct. 1, 100 ft. S and W, C SE Sec. 15-23-8. Cd. S.W. sd. 7,573-94 ft.; drlg. sh. 7,618 ft.
Union Producing Co.'s No. 1-A T. D. Meadows et al, C NE Sec. 18-21-4. Set 16-in. csg. 315 ft.; W.O.C.

La Salle Parish

O. K. Allen, Jr., et al's No. 1 Breedlove. C SW NE Sec. 32-11-3e. Set 10¾-in. csg. 100 ft.; T. Wlx. 1,600 ft.; T.D. 1,660 ft., S.D.; perf. 2,232-38 ft.; tstd. 13 B.F.P.H.; ¼-in. ck.; 25% S.W.; took side-wall cores, N.S.; dpnd. to 2,436 ft.; rng, csg.
Ark. Fuel Oil Co.'s No. 1 Gandy unit, 606 ft. N, 662 ft. E, SW cor. SE Sec. 12-10-2e. Set 10¾-in. csg. 192 ft.; gas sd. 2,208-14 ft.; oil sd. 2,217-26 ft. and 2,233-41 ft.; set 7-in. csg. 2,256 ft.; perf. 2,234-47 ft.; tstd. est. 5,000,000 cu. ft. gas; sqzd. off and reperf. 3,237-47 ft.; tstd. est. 5,000,000 cu. ft. gas; sqzd. off and reperf. 2,243-48 ft.; tstd. est. 5,000,000 cu. ft. gas; killed and arng. reperf.
Arkansas Fuel Oil Co.'s No. 2-B Good-Pine, C SW SW Sec. 18-10-3e. Set 10¾-in. csg. 193 ft.; 7-in. csg. 2,262 ft.; T. Wlx. 1,619 ft.; oil sds. 2,220-30 ft. and 2,252-55 ft. and 2,257-62 ft.
Peterson Pet. Corp.'s No. 1 Tremont Lbr. Co., C NE SW Sec. 25-9-2e. Set 10¾-in. csg. 140 ft.; drld. to 4,000 ft.; ran electrical log; taking side-wall cores 3,035-50 ft.
Placid Oil Co.'s No. 7 Goodpine. C SE SW Sec. 18-10-3e. T. Wlx. 1,620 ft.; perf. oil sds. 2,212-18 ft. and 2,222-34 ft.; tstd. H.F.O., slight show S.W.; will set flow valves; 7-in. csg. set 2,429 ft.
Placid Oil Co.'s No. 1 Hopkins, Louisiana Central unit, C NE SE Sec. 12-10-2e. Set 10¾-in. csg. 100 ft.; W.O.C. 109 ft.

Ouachita Parish

Interstate Nat. Gas Co.'s No. 99 fee, Sec. 44-19-3e. Set 8-in. csg. 764 ft.; W.O.C.
Interstate Nat. Gas Co.'s No. 100 fee, Sec. 44-19-3e. R.U.

Sabine Parish

Shell Oil Co., Inc.'s No. 1 Pickering Lbr. Co., C NE SW Sec. 30-4-12. Made electrical survey; set csg. 3,200 ft.

Union Parish

N. & W. Corp.'s No. 1 Holloway, Sec. 21-21-3e. Set 6-in. csg. 2,096 ft.

Webster Parish

W. C. Feazel's No. 1 Tillman, 1,320 ft. NW cor. NE Sec. 11-17-9. Set 9⅝-in. csg. 2,190 ft.; drlg. anhy. 5,608 ft.
Hunt Oil Co.'s No. 7 Bodcaw, 100 ft. SW cor. NE SE Sec. 15-21-10. Set 9⅝-in. csg. 604 ft.
Hunt Oil Co.'s No. 2 Scott, 1,980 ft. N. 50 ft. E, SW cor. Sec. 20-21-9. Set 13⅜-in. csg. 610 ft.; drlg. sh.&sd. 7,978 ft.
Midstates Oil Corp.'s No. 1 Giddens unit 282 ft. N and W, C SW NE Sec. 30-21-9. Set 9⅝-in. csg. 5,620 ft.; drlg. hd. sdy. sh. 7,590 ft.

TEXAS

Week Ended July 20

GULF COAST WILDCATS

Colorado County

Shell Oil Co., Inc.'s No. 1 R. H. Goodrich, H. Heller Sur. T.D. 8,145 ft.; 5½-in. csg. 8,133 ft.; flwg. P.L.O.; no ga.

Hardin County

Jack Frazier et al's No. 1 Nona Mills, S. B. Turner Sur. T. Cockfield 7,111-40 ft.; drlg. 8,225 ft.

Harris County

J. W. Frazier et al's No. 1 Mrs. Theone Killerman Johnson et al, Whitney Britton Sur. 10¾-in. csg. 1,241 ft.; drlg. sh. 3,730 ft.

Walker County

E. J. Dupree's No. 2 Thompson, M. Milsap Sur. T.D. 3,207 ft.; 5½-in. csg. 2,900 ft. swbd. S.W. 2,916-26 ft.; made sqze. job; retesting.

S. W. TEXAS WILDCATS

Brooks County

Sun Oil Co.'s No. 1-A Charles Boedecker, Sec. 16, C.C.S.D.&R.G.N.G. Sur. Drlg. sh. 3,620 ft.
West Prod. Co.'s No. 1 J. D. Cage, G.C.& S.F. Sur. 31. Drlg. sh. 6,330 ft.

Duval County

Forest Dev. Corp.'s No. 1 Rogers, J. Poitevent Sur. 275. T.D. 4,307 ft.; 5½-in. csg. 4,307 ft.; perf. csg. 4,303-06 ft.; flwg. 27½ B.P.D.; 9/32-in. ck.
Norsworthy Prod. Co.'s No. 1 DeLopez. Y. Benavides Sur., Sec. 57. T.D. 5,008 ft.; abd.

Goliad County

J. K. Culton's No. 1 S. E. Cole, Goliad Town Tr. Drlg. 5,576 ft.

Jim Hogg County

Patel Drillers, Inc., et al's No. 1 Gutierez, E. C. Barton Sur. 579. T.D. 3,156 ft.; perf. csg. 3,124-27 ft.; tstd. dry gas; S.I.

La Salle County

H. R. Cullen's No. 1 Wildenthal, J. McMullen & J. McGloin Sur., Blk. 69. Spd.

Lee County

Fred Pederson et al's No. 1 Brown, David Hudson Sur. T. Glen Rose L. 6,600 ft.: 5½-in. lnr. cmtd. 8,201 ft.; drlg. L. 8,595 ft.

McMullen County

Cities Service Oil Co.'s No. 2 Rhode. L. W. Snowden Sur. 20. Drlg. sh. 2,350 ft.

Nueces County

H. D. & H.'s No. 1 State, Cayo del Oso. Drlg. sdy. sh. 4,228 ft.
Humble O. & R. Co.'s No. 1-B State, Tr. 706. 16-in. csg. 134 ft.; drlg. sh. 5,937 ft.
Richardson Pet. Co.'s No. 1 Boy Scouts of America, M. L. De Herrera grr. (Robstown field). T.D. 6,869 ft.; 5½-in. csg. 6,692 ft.; perf. csg.
Fred W. Shield's No. 1 J. O. Moore, De Lores I.&A. Sur., Sec. 143. 10¾-in. csg. 766 ft.; drlg. 6,575 ft.
Stanolind O. & G. Co.'s No. 1 State, C. M. Blucher Sur., Tr. 746, 1½ mi. S of E. White Point field. S.D. 6,200 ft.
Texas Conservative Oil Co.'s No. 1 Isensee, Gregorio Farias Sur. Drlg. 6,520 ft.

Victoria County

Celton & Celton's No. 1 Terrell, J. B. Sideck Sur. T.D. 5,285 ft.: 7-in. csg. perf. 5,279-82 ft. and 5,287-89 ft.

WEST TEXAS WILDCATS

(Northern District)

Andrews County

Atlantic Refg. Co.'s No. 1-23 University, Sec. 23, Blk. 11, Univ. Lds. Sur. Swbg. 55 B.O.P.H. after shot and acd. from 4,248-4,470 ft.; pmpd. 172 B.O. in 19 hrs.
Texas Pacific Coal & Oil Co.'s No. 1-A Midland farms, NE NW Sec. 1, Blk. 40, Twp. 1n, T.&P. Survey, 5,000-ft. test. W.O.C. 2,965 ft.

Cochran County

Texas Co.'s No. 1-F Mallett Land & Cattle Co., SW cor. Labor 25, Lge. 51, Scurry C.S.L. Sur. Swbg. and flwg. 113 B.O. in 13 hrs.; after acid, at T.D. at 5,059 ft.; made 458 B.O.P.D.; on ga.

Gaines County

Richmond Drlg. Co. et al's No. 1 G. R. Brumley, NE NE Sec. 17, Blk. 12-A, P.S.L. Sur. T.D. 4,664 ft.; P.B. depth 4,660 ft.; tstd. S.W.; no oil.

Howard County

M. L. Richards' No. 1 Thelma J. Cole, SE NW Sec. 12, Blk. 26, H.&T.C. Sur. 3,500-ft. test. Drlg. 2,285 ft.

Stonewall County

Shell Oil Co., Inc.'s No. 1 J. D. Patterson, SW NW Sec. 393, Blk. D. H.& T.C. Sur.; Ordovician test. Drlg. 3,100 ft.
Shell Oil Co., Inc.'s No. 1 Smith, Sec. 143, Blk. 1, H.&T.C. Sur. Top Mississippian at 6,007 ft., top saturation at 6,015 ft. and drilled to T.D. 6,028 ft. in saturation; flwd. 280 bbl. oil in 24 hrs.; T.D. 6,085 ft.; last report; at 6,050 ft.; well flwd. 68 B.O.P.D.; tools still in hole; tstg.

Yoakum County

Amerada Pet. Corp.'s No. 1 A. M. Brownfield, NE SW Sec. 620, Blk. D, Gibson Sur.; 5,500-ft. test. T.D. 5,769 ft.; sul. wtr.; may R.U. and D.D.

(Southern District)

Crane County

Gulf Oil Corp.'s No. 5 M. B. McKnight, Sec. 1, Blk. 21-B, P.S.L. Sur. Drlg. 6,797 ft.
Gulf Oil Corp.'s No. 1-F University, SE SE Sec. 22, Blk. 31, Univ. Sur. Drlg. 3,054 ft.
Gulf Oil Corp.'s No. 12 Waddell, Sec. 30, Blk. 26-B, P.S.L. Sur. 12-in. 532 ft.; S.O. 3,215-20 ft.; S.S.G. 3,635 ft.; 8-in. csg. cmtd. 3,713 ft.; S.O. wtr. 3,763 ft.; tstg. 3,780 ft., mostly wtr.; topped 13,000,000 cu. ft. gas at 4,385 ft.; est. 500 B.O.P.D.; drlg. by tools 4,406 ft.
Moore Bros. Explin. Co.'s No. 2 Barnsley, NE NE Sec. 42, Blk. 32, P.S.L. Sur., 3 mi. SE of Gulf Oil Corp.'s discovery well No. 1-A Tubb. Prep. spd.

Crockett County

Gregory & McCandless' No. 1 Shannon estate, 1,787 ft. from S and 3,107 ft. from E lines of Lge. 3, Archer C.S.L. Sur. Drlg. 2,237 ft.
M. & M. Drlg. Co.'s No. 1 G. Bouscaren, SE cor. NW Sec. 29, Blk. G.G., H.E.& W.T. Sur., 1 mi. N of Soma discovery well. T.D. 1,492 ft.; S.D.O.

Hudspeth County

Haymon Krupp Oil & Ld. Co.'s No. 1 Briggs, Sec. 24, Blk. 73, Twp. 7, T.& P. Sur. T.D. 6,175 ft.; 5½-in. csg. set at 6,166 ft.; drlg. 6,206 ft.

Pecos County

Plymouth Oil Co.'s No. 1 Richard Levy, SW cor. Sec. 104, Blk. 8, H.&G.N. Sur. Drlg. 5,705 ft.

Presidio County

H. D. Wilcox's No. 1 C. E. Conring, 500 ft. from the N and 2,080 ft. from the E lines of Sec. 102, Blk. 4, G.H.&S.A. Sur. T.D. 475 ft.

Reagan County

R. E. Ringo's No. 1 fee, 1,320 ft. from N and W lines of Sec. 22, Blk. K, 3,500-ft. test. Drlg. 1,725 ft.

Reeves County

Roy Johnson's No. 1 H. L. Perkins, Sec. 18, Blk. 7-C, P.S.L. Sur. Fsg. 1,215 ft.

Sutton County

Domain Oil Co.'s No. 1 G. S. Allison, SW NE Sec. 91, Blk. 9, T.W.&N.G. Sur., Ellenburger L. test. Drlg. 908 ft.
W. M. Lyles and L. H. Dunn's No. 1 C D. Wyatt, NE NE Sec. 4, Blk. 6, T.W. &N.G. Sur.; Ordovician test. M.I.M.

Upton County

B. C. & D. Dev. Co.'s No. 1 Richard Owens, NE NW Sec. 91, Blk. Y, G.C. &S.F. Sur. T.D. 1,075 ft.

Ward County

Gulf Oil Corp.'s No. 5 Wristen, Sec. 13, Blk. 5, H.&T.C. Sur.; scheduled Ordovician test. Cg. 8,593 ft.
Sinclair Prairie Oil Co.'s No. 1 Wirt Davis, 330 ft. NW, 2,310 ft. SW lines Sec. 32, Blk. 4, H.&T.C. Sur.; 3,500-ft. test; M.I.M.

Winkler County

Gulf Oil Corp.'s No. 136 O'Brien, SE SW Sec. 11, Blk. F, G.M.M.B.&A. Sur. Wtr. at T.D. 3,187 ft.; P.B. 3,000 ft.; tstg.

E. C. TEXAS WILDCATS

Anderson County

Wright Drlg. Co.'s No. 1 Hart & Maberry, R. W. Box Sur., 8 mi. SW of Elkhart. S.D. 10 ft.

Freestone County

L. F. Grey's No. 1 O. B. Utley, S. J. Claypool Sur., 4 mi. N of Fairfield. W.O.C. 106 ft.

Henderson County

E. B. LaRue's No. 1 R. H. Davis, E. G. Harris Sur., 3 mi. NE of Stockard. S.D. 2,489 ft.

Kaufman County

W. H. McGee's No. 1 Rutland Savings Bnk., John Baker Sur., 2¼ mi. NE of Tulosa. T.D. 3,120 ft.; S.D.O.
T. G. Shaw, Tr.'s No. 1 Angus Wynne, B. S. Newman Sur., 8 mi. E. Kaufman, lower Trinity test. T. anhy. 5,934 ft.; T. Massive 6,123 ft.; B. Massive 6,255 ft.; T.D. 6,454 ft.; fsg. 4,030 ft.

Leon County

Alexander & Wilhite's No. 1 C. H. Mills, M. Copeland Sur., 2½ mi. E of Normangee. S.D. 450 ft.

Red River County

Joe White's No. 1 Kurth Lbr. Co., E Smith Sur., near Allen Mill. Drlg. 940 ft.

Rusk County

J. S. Harrold's No. 1 M. J. Armstrong, M. D. Carmel Sur., 3 mi. SE Henderson. Drlg. 5,430 ft.

EAST TEXAS

(Border Counties)

Bowie County

W. E. Neill's No. 1 L. Fort, 600 ft. NL,

LEGAL

U. S. Department of the Interior, General Land Office, Washington, D. C. Sale of oil and gas leases in Oklahoma. Notice is hereby given that leases of the oil and gas deposits in the following lands in the known geologic structure of the Red River oil field, Oklahoma, defined October 18, 1928, are offered to the responsible qualified bidder of the highest bonus per acre pursuant to the provisions of section 17 of the leasing act of February 15, 1920 (41 Stat. 437), as amended by the act of August 21, 1935 (49 Stat. 674), at the royalty rate scale in the lease form shown in Circular 1386, at a sale to be held in the office of the Geological Survey, Post Office Building, Ardmore, Oklahoma, at 10 o'clock A. M. on August 21, 1940: Unit No. 1: Beginning at a point in the river bed, South 61° 35' E., 117.40 chains from the Texas-Oklahoma Boundary Survey reference Monument, "North Range Line, 15/14," which is 45.4 links south of the corner of Secs. 1, 6, 7, and 12, T. 5 S., Rs. 14 and 15 W., Ind. Mer., Oklahoma, thence in the river bed, along the East boundary of the Lone Star (upper tract) south 17.50 chains, to the Texas-Oklahoma boundary and the S.E. corner of the Lone Star (upper tract); thence along the boundary North 40° 09' E., 3.60 chains, North 44° 09' E., 3.13 chains, to the West boundary of the Burke Divide Lease (middle lease); thence in the river bed, along the West boundary of the Burke Divide Lease (middle lease) North, 12.50 chains, to a point which is the N.E. corner of the Corts Drilling Company and a common corner to the Burke Divide Lease (middle lease); thence in river bed, along the South boundary of the Burke Divide Lease (middle lease) West, 4.50 chains, to place of beginning, containing 6.7 acres. Unit No. 2: Beginning at a point on the north line of the Sam Sparks Survey, South 49° 49' E., 104.63 chains from the Texas-Oklahoma Boundary Survey reference monument, "North Range Line 15/14," which is 45.4 links south of the corner of Secs. 1, 6, 7, and 12, T. 5 S., Rs. 14 and 15 W., Ind. Mer., Oklahoma, thence along the north line of the Sam Sparks Survey South 60° 04' W., 18.77 chains, South 76° 15' W., 4.00 chains, to east boundary of the Burke Divide upper permit; thence in river bed along the boundary of the Burke Divide upper permit, South 2.08 chains, East 20.15 chains, to the Southwest corner of the Burke Divide upper lease; thence in the river bed along the west boundary of the Burke Divide upper lease, North 12.40 chains to place of beginning, containing 13.5 acres. Unit No. 3: Beginning at the NW cor. of the Melish lower permit, Guthrie 014088. "Thence N. 12° 30' W., 2.15 chains, more or less, to the medial line of Red River. Thence following the medial line, southwesterly, 26.20 chains, approximately, to the east bdy. of the Mutual lease. Thence along the east bdy. of the Mutual lease, S. 12° 30' E., 0.90 chains, more or less. Thence along the bdrs. of the Melish middle lease, N. 57° 30' E., 6.38 chains, N, 76° 30' E., 5.95 chains, S. 12° 30' E., 38.00 chains, more or less, to the Texas-Oklahoma Bdy. Thence along the said State bdy. line, easterly, 34.00 chains, more or less, to a point. Thence N. 8° 00' W., 1.00 chain, more or less, to the SE cor. of the Melish lower lease. Thence along the bdrs. of the Melish lower lease and permit, S. 76° 00' W., 19.78 chains, N. 12° 30' W., 40.00 chains, to the place of beginning, containing approximately 64 acres, subject to variation arising from changes in the position of the medial line and of the south bank of the river since December 31, 1923. Unit No. 4: Beginning at the SE cor. of the Melish lower lease, Guthrie 014088. Thence S, 8° 00' E., 1.00 chain, more or less, to the Texas-Oklahoma Bdy. Thence along the said bdy., northeasterly, 68.00 chains, more or less Thence, west, 21.00 chains, more or less, to the east bdy. of the Patterson lease. Thence along the bdy. of the Patterson lease, south 10.00 chains, to the SE cor. of the Patterson lease, west 17.50 chains, to the SW cor. of the Patterson lease, north 22.80 chains, to the NW cor. of the Patterson permit. Thence north, 2.40 chains, more or less, to the medial line of Red River. Thence along the medial line, southwesterly, 46.00 chains, more or less, to the east bdy. of Unit No. 3. Thence S. 12° 30' E., 2.15 chains, more or less, to the NW cor. of the Melish lower permit. Thence along the bdrs. of the Melish lower permit and lease, N. 76° 00' E, 20.00 chains N. 52° 30' E., 3.45 chains, S. 8° 00' E., 41.55 chains, to the place of beginning, containing approximately 150 acres, subject to variation arising from changes in the position of the medial line and of the south bank of the river since December 31, 1923. Two or more units may be consolidated in a single lease to the same qualified bidder provided the acreage does not exceed the maximum prescribed by law. The successful bidder must deposit on the day of the sale a certified check on a solvent bank or cash for 1/5 of the amount of each bid and file the showing of qualifications to receive a lease, required by section 7 of General Land Office Circular 1386. The remaining 4/5, together with the annual rental in advance at the rate of $1 per acre must be paid, and a $5,000 corporate surety bond must be furnished prior to the issuance of the lease. The bidders are warned against violation of the provisions of section 59 of the United States Criminal Code approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids at the discretion of the Secretary of the Interior, Commissioner, General Land Office.

150 ft. EL, 103-ac. tr., L. Peters Sur. T.D. 2,320 ft.; report S.S.O.; rng. electrical survey.

Shell Oil Co., Inc.'s No. 1 W. D. Wall, 6,900 ft. EL and 4,000 ft. SL of J Downey Sur.; 6,000-ft. test. Drlg. 5,726 ft.

Harrison County

Arkansas-Louisiana Gas Co.'s No. 1-D Abney, James Shandoin Sur. Set 13⅜-in. csg. 150 ft.; W.O.C.

Arkansas-Louisiana Gas Co.'s No. 1 M. G. Armstrong, S. Holloway Sur. Loc.

Union Prod. Co.'s No. 1 John S. Bryson, T. D. Wilson Sur., 2½ mi. SW of Waskom area. Drlg. 3,196 ft.

Marion County—Other

J. D. Baker's No. 2 Decker, 500 ft. S, 300 ft. W, NE cor. J. G. Reeves Sur. T.D., sh. 2,416 ft.; U.R.; set 5½-in. csg. 2,210 ft.; oil sd. 2,370-2,400 ft.; W. O.S.R. 2,416 ft.

T. B. Donnell's No. 1 Ida Burr, John Reeves Sur. R.U.

Henry & Parson's No. 1 W. C. Ralph, Eli Usury Sur., 3 mi. N of Jefferson. Set 9⅝-in. csg. 1,012 ft.; setting csg. 5,995 ft.

Lamar Lindsay's No. 3 Sid Hart, G. Coore Sur. Drlg. clk. 1,710 ft.

J. F. McLaughlin's No. 1 M. D. Hart, 3,050 ft. WL, 2,425 ft. NL, M. G. Nall Sur. Drlg. clk. 1,473 ft.

H. T. Manning's No. 1 T. O Livingston, G. Coore Sur. S.D. 2,310 ft.

J. D. Reynolds' No. 6-B Terry est., 175 ft. NL L. Whatley tr., 1,000 ft. EL W. Coore Sur. Set 5½-in. csg. 2,312 ft.; T.D. 2,344 ft.; W.O.S.R.

Sabine County

Sterm & Womack's No. 1 I. K. Kieth Southwestern Lands, 400 ft. SL, 500 ft. EL, 53-ac. tr., L. Grace Sur. Drlg. 4,183 ft.

Shelby County

P. & B. Oil Co.'s No. 2 W. C. Windham, A. K. English Sur. Set 10-in. csg. 170 ft.; T.D. 5,335½ ft.; pmpd. 20 B.F.P.D., 50% S.W.; acd. and pmpd. 5 B.O. and 28 bbl. S.W.

W. C. Parker's No. 1 F. G. Willey, 480 varas NL, 240 varas EL, 94-ac. tr., A. K. English Sur. Set 5½-in. csg. 3,330 ft.; T.D. 3,482 ft.; S.D.

Superior Oil Co. of Tulsa's No. 4 Pickering Lbr. Co., W. J. Crane Sur. Drlg. 1,289 ft.

Union Producing Co.'s No. 1-A Mrs. M. E. Garrett, 932 ft. due E WL, 1,485 ft. N 30° W SL, W. M. Moody Sur. Set 9⅝-in. csg. 1,653 ft.; drlg. plug.

WEST CENTRAL TEXAS DISTRICT

Brown County

F. Brittian's No. 1 G. R. McEnloe, 1,130 ft. NE, 330 ft. NW lines of J. Williams Sur. 33; 1,800-ft. test. R.U.

Simon & Wynn, G. F. Morrissey and Hill Bros.' No. 1 J. H. Fry, Blk. 33, John Williams Sur., 1,250-ft. test. Loc.

Callahan County

N. D. Gallagher's No. 1 E. Grisson, SE pt. Sec. 2, Blk. 8, S.P. Sur. U.R. 8¼-in. csg. 1,200 ft.

H. W. Lee's No. 1 Mrs. Murray Harris, SW cor. NW SW Sec. 99, B.B.B.&C. Sur.; 1,350-ft. test. T.D. 1,229 ft.; oil sd. 1,227-29 ft.; est. 30 B.O.P.D.; shot collapsed csg. 40 ft. off bttm.; tstg.

Coleman County

R. H. Murray's No. 1 J. A. Norris, 467 ft. from S and W lines of NE 100 ac., J. Greenwood Sur. 304.; 4,000-ft. test. Loc.

Comanche County

C. D. Lane's No. 1 H. W. Strout, NE pt. of E. D. Corbit Sur., Abst. 154; 3,100-ft. test. Loc.

Eastland County

W. N. Jackson's No. 1 R. Norris, 150 ft. S and W lines of Subd. 16, McLennan Co. Sch. Lds. Sur.; 1,170-ft. test. W. O.C. 900 ft.

Hamilton County

A. J. Caldwell's No. 1 W. W. Jones, 1,002 ft. from NE, 150 ft. from SE lines of W. H. Crowder Sur. Drlg. 2,948 ft.

Jones County

Best Oil Co.'s No. 1 A. A. McDuff, 5,200 ft. S, 1,100 ft. E lines of J. J. Hughes Sur. 256. Drlg. 710 ft.

Merry Bros. & Perini's No. 1 C. S. Walker, SE cor. Walker tr., G. Martinez Sur. 137. S.D.O. 1,925 ft.

Palo Pinto County

W. B. Davis and P. F. Cole's No. 1 Jess Rogers, SE cor. T.E.&L. Sur. 894, Abst. 470; 5,500-ft. test. M.I.M.

Georgian Oil Co.'s No. 1 J. K. Weldon, A. J. Smith Sur., Abst. 393; 2,500-ft. test. Drlg. 310 ft.

Fred Guyer's No. 1 Dalton, Dalton Sur., Abst. 153; 1,400-ft. test. R.U.M.

Parker County

Brown & Gardner Bros.' No. 1 Gilbert, T.&P. Sur., Abst. 1958. Tstg. gas; C.O. 100 ft. off bttm.; csg. set 3,905 ft.; S.I. 4,327 ft.; est. 500,000 ft. gas and spray oil; S.D.O. 4,412 ft.

W. M. Holland and C. Leidecker's No. 1 G. W. Keeling, F. Lidely Sur., Abst. 829, 1⅛ mi. W of Springtown; 3,500-ft. test. S.D.O. 2,407 ft.

C. Leidecker and Wm. Holland's No. 1 J. A. Boyd, NE NE of S 100 ac. of A. J. Edwards Sur.; 4,500-ft. test. T.D. 1,579 ft.

Shackelford County

T. L. Blanton's No. 1 W. F. Tucker, SW Sec. 552, T.E.&L. Sur. Loc.

Stephens County

Carey's No. 1 Crudington, SE cor. T.E. &L. Sur. 1268, 5½ mi. S of Stribling field. W.O.C. at 3,361 ft.; S.O. from 3,362-64 ft.; acd. with 2,000 gal. 3,362-71 ft.; S.D.O. after ripping lnr. set at 3,720 ft.

J. R. Tolbert's No. 1 W. L. Martin, NW cor. NE¼ Blk. 1335, T.E.&L. Sur., 1½ mi. SW of Fagg area. Tstg. for completion at 3,885 ft.; for est. 30 B.O. P.D.

NORTH TEXAS WILDCATS

Archer County

L. T. Burns' No. 1 Mrs. J. Turberville, NW cor. Blk. 154, Robt. Carson Sur., Abst. 80; (Caddo L. test). Drlg. 4,680 ft.

Chapman & McFarlin's No. 7 Wilson, E. Hall Sur., Abst. 682. Topped Ellenburger 4,894 ft.; T.D. 5,091 ft.; P.B. 4,650 ft.; to set csg. to test S.S.O. 4,636-50 ft.

W. H. Gant's No. 1 A. Vogtsberger, Sec. 3, G. E. Co. A-146 Sur.; 5,200-ft. test. O.S. 4,659-71 ft.; L.S.O. 5,257-69 (cd.) ft.; cmtd. 6⅝-in. at 4,651 ft.; swbd. 16 B.O. in 16 hrs.; flwd. 62 bbl. in 4 hrs. through csg. after being S.I. for 2 wks.; rng. tbg.; S.I.

Baylor County

R. T. Myers' No. 1 W. H. Portwood, Sec. 19, H.&T.C. Sur., Blk. 45. S.D. 1,040 ft.

Clay County

Deep Rock Oil Co.'s No. 1 S. Dycus, Sec. 2602, T.E.&L. Sur., 3,600-ft. test. Drlg. 5,230 ft.

J. E. Farrell's No. 1 C. R. Malone, Sec. 12, T.&N.O. Sur., Abst. 828. Drlg. 6,750 ft.

Horton & Wiggins' No. 1 W. J. Howard, Blk. 31, T. J. Belcher Sur. Drlg. 3,160 ft.

L. O. McMillan's No. 1 Tom Watson, Sec. 2620, T.E.&L. Sur. Drlg. 3,650 ft.

Youngblood & Foree's No. 1 Ida Wynne, Sec. 2, T.&N.O. Sur., Abst. 795.; O.W. D.D. below 6,070 ft.

Denton County

Amon G. Carter's No. 1 W. P. and A. P. Allen, S. Westbrook Sur. Drlg. 3,497 ft.

Seitz, Comegy & Seitz' No. 1 F. Freeman, M.E.P.&P. Sur., Abst. 1470. S.D. O. 6,015 ft.

Hardeman County

Norris & Gilbert's No. 1 Robert Weekley, SW SE Sec. 87, Blk. 16, H.&T.C. Sur. Drlg. 3,325 ft.

Jack County

R. A. Conkling's No. 1 M. Hoofle, A. James Sur., Abst. 318, 3 mi. S Antelope; 3,500-ft. test. Drlg. 1,600 ft.

Harper & Knappenberger's No. 1 A. A. Crum, J. G. McLendon Sur., Abst. 1797. Drld. sat. 3,131-44 ft.; prep. test.

Harper Pet. Co.'s No. 1 J. W. Kinder, SW¼ Sec. 2667, T.E.&L. Sur., Abst 762. Show oil 2,116-31 ft.; T.D. 2,160 ft.; S.D.O.

Montague County

Continental Oil Co.'s No. 1 Drummond, SE cor. Sec. 8, Limestone C.S.L. Sur., 1 mi. NE of Stoneburg. Loc.

Walter Gant's No. 1 Will Laird, R. T. Millard Sur., Abst. 470, 7 mi. W of Sunset. S.S.O. 4,857-77 ft.; drlg. 5,180 ft.

Hults & Owens' No. 1 Tucker, NW cor Sec. 2836, T.E.&L. Sur. Hole spd.; drlg. wtr. well.

W. H. Peckham's No. 1 Dr. Lawson, N. Kimbro Sur., Abst. 405. Drlg. 5,540 ft.

Throckmorton County

Normandie Oil Corp.'s No. 1 Travis, Sec. 37, Travis C.S.L. S.D. 3,895 ft.

Wilbarger County

Amerada Pet. Corp.'s No. 1 B. Goodpasture, Sec. 35, H.&T.C. Sur., Blk. 15. 6,000-ft. test. Sat. lime 4,407-20 ft.; 600 ft. oil and 150 ft. mud on 60-min. D.S.T.; set csg. 6,306 ft.; drld. plug and swbd. 10 B.O.P.H.; T.D. 6,717 ft.; P.B. 3,438 ft.; perf. csg. 3,230-52 ft. with 80 shots; flowed 150 B.O. in 5½ hours through ½-in. choke; later flowed 241 bbl. in 8½ hours; casing pressure 75 lb. and tubing pressure 75 lb.; tstg.

Herbert Oil Co.'s No. 1 S. B. Peters. S.D.O. 2,050 ft.

Young County

Commodore Oil Co.'s No. 1 Clinton Realty Co., Sec. 2384, T.E.&L. Sur. L.S.O. 3,690-3,705 ft.; T.D. 3,780 ft.; S.D.O.

A. T. Strong's No. 1 Craig heirs, N. Lynch Sur. S.O. 4,225-40 ft.; tstg.

TEXAS PANHANDLE

Childress County

Texas Co.'s No. 1 P. B. Smith, NW NW Sec. 97, Blk. 9, H.&G.N. Sur., 7,500-ft. contract. Had salt water and air blowout at 500 ft.; drlg. 2,000 ft.

Cottle County

Burns et al's No. 1 Moss, Sec. 5, Forsythe Sur. S.D.O. 1,960 ft.

Hall County

Humble Oil & Ref. Co.'s No. 1 A. D. Weaver, SW NW Sec. 51, Blk. 1, S.P Sur.; 7,500-ft. test. Prep. drill plug 2,499 ft.

Sherman County

I.T.I.O. Co.'s No. 1 S. C. Bryant, C NW¼ Sec. 360, Blk. T-1, T.&N.O. Sur. Perf. csg. from 3,975-88 ft.; shot with 60 qt.; P.B. from 4,200 ft. to test upper gas shows.

Swisher County

Krupp-Flaherty's No. 1 Kleen, Sec. 120, Blk. 10-M, B.S.&M. Sur. S.D.O. 800 ft.

ALABAMA

Fayette County

B. L. Fillingame's No. 1 Alabama Educational Ass'n., NW SW Sec. 3-16s-12w. M.I.M.

Lawrence County

Mid-Southern Pet. Co.'s No. 1 Jackson, NE NE Sec. 30-7s-6w. Set surf. csg.; drlg. 1,106 ft.; no report.

Marion County

Seaboard Oil Co.'s No. 1 Clark et al., 360 ft. W, 660 ft. N, SE cor. SE SW Sec. 28-11s-14w. Shot 638-45 ft. with 180 qt. nitroglycerin; crooked hole; skdd. over; drlg. 1,375 ft.

Mobile County

Rose & Hunt's (formerly W. L. McClanahan) No. 1 J. A. Stafford, 300 ft. N, 150 ft. W SE cor. NW SW Sec. 24-7s-3w. Set 10-in. csg. 750 ft.; reported S.G. 3,475-90 ft. and S.O. 4,550-72 ft.; ran electrical log 5,590 ft.; T.D. 6,541 ft.; ran electrical survey; S.D.; plan to deepen to 8,500 ft.

Plains Prod. Co.'s No. 1 Daly-Hardman, NW cor. SE SE Sec. 2-6s-4w. Drlg. chk. 6,507 ft.

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HOUSTON U.S.A. TEXAS

Missouri Test Has Showing Of Oil in Hunton Lime

ST. JOSEPH, Mo., July 23.—Showings of oil in Hunton limestone at a total depth of 2,308 ft. caused operators this week to believe the Brin & Nathan, 1 Decker, 5 miles east of Mound City, Mo., in Holt County, C NW NW 1-61n-38w, had the makings of the first deep commercial well of Missouri. Showings appeared from 2,302 to 2,308 ft., underneath very hard lime that extended from 2,297 to 2,302 ft. At 2,270 ft. the test took on a hole full of water, which at the time made the Hunton section seem doomed. The lime was topped at 2,211 ft. After the showing considerable free oil forced its way into the hole. Hopes were high for a commercial producer. This test was spudded June 11, 1939.

That was the only Missouri development of note. J. W. Eddington, 1 Clark in NE SE 8-63n-14w, Adair County, was dry at 1,247 ft. in Arbuckle lime topped at 1,216 ft. C. R. Gallemore, 1 Buckler in SW NW 22-52n-14w, Randolph County, was shut down at 1,045 ft. in Arbuckle topped at 700 ft. Abandonment was expected momentarily.

Jefferson County, Kansas, produced the largest gas well of the Forest City basin. Dan McLaughlin, 1 Darks at McLouth in SW NW 4-10s-20e, had 14,000,000 cu. ft. at 1,377 ft. and was drilling ahead slowly. This well is between a gasser and an oiler drilled by McLaughlin in the same section. Ladd & Vincent, 1 Achten was spudded in S½ SE NW 12-4s-14e, Nemaha County, Kansas, southwest of Fairview.

In Johnson County, Kansas, activity was as follows:

F. J. Kasper, 1 Hammer in NE SW 33-13s-22e, drilling at 370 ft.

F. J. Kasper, 2 Hammer in NW NE SW 33-13-22, dry at 689 ft. About 30,000 cu. ft. of gas had been found in Lexington slate at that depth.

Hammel et al, 1 Gorman in S½ NE SE 4-12s-24e, drilling at 539 ft.

Sagamore Oil & Gas Co. and F. J. Kasper, 1 Keegan in NW NE SW 33-13s-22e, 135,000 cu. ft. of gas in lower sand at 675 ft.

Sagamore Oil & Gas Co. is drilling another well on the Hammer farm in SE SW 33-13s-22e, Johnson County.

In the Nebraska sector of the Forest City basin the I. T. I. O. indicated it had acidized for the last time its No. 1 Schaible-Kuttler pool opener southeast of Shubert and 10 miles north of Falls City production, Richardson County. The well, in NE SW 29-3n-16e, swabbed 300 to 380 bbl. daily after treatment with 3,000 gal., no perceptible increase over a previous treatment with 1,000 gal. Still earlier it had been treated with 500 gal. Total depth is 2,452 ft.; Hunton top, 2,432 ft.

Four miles west of Salem, in Richardson County, the second pool opener of the county was going on a pump. That is the Uhrl, 1 Ogle in NE NW SE SE 9-1n-14e, 10 miles west of Falls City production. At total depth of 2,260 ft., in Hunton lime topped at 2,258 ft., the well has been swabbing 300 bbl. of oil daily following acidization with 500 gal.

Less than a mile northwest of Salem the Campbell & Sparks, 1 Horton NE NW 5-1n-15e, Richardson County, was running low, having topped Hunton lime below 2,600 ft. On the way to the Viola lime the test lost circulation at 3,090 ft. and 7-in. casing was to be run.

On the east edge of Salem in SE NE SE 3-1n-15e, Forest City Basin Syndicate, 1 Windle was drilling at 1,500 ft.

In the Falls City area Pawnee Royalty Co. treated its No. 1 Keim-Workman with 250 gal. and swabbed 432 bbl. of oil daily, following with it reacidized with 750 gal. and swabbed at the rate of 500 bbl. daily, reporting a little water. The well is in NE SE 18-1n-16e, west offset to No. 1 Bucholz. The company's No. 1 Zentner, 1 mile northeast of No. 1 Boice discovery, in NE SE 8-1n-16e, topped Hunton lime at 2,388 ft., found saturation at 2,414 ft., and cemented pipe on top of the lime for a test.

New Conservation Law, New Taxes, Enacted in Louisiana

(Continued from Page 60)

ister the law. A three-man board of minerals will also be appointed, for overlapping terms.

Although the reorganization bill has been enacted, Governor Jones has several weeks in which to make his appointments. However, early action is anticipated. As director of minerals he is expected to appoint present Conservation Commissioner B. A. Hardey, who accepted his current post as a temporary assignment under the new administration, to place the Conservation Department on a more workable basis. Major Hardey's interest is directed to the conservation of oil and gas.

Tax Measures

Two new acts of the legislature imposed added taxes on the oil industry. They were considered expedient in view of the large state deficit left by the outgoing Long administration. The taxes are considered as emergency, temporary measures, like similar levies applying to other sources of revenue.

The severance tax, as it applies to oil, levies the following rates on crude oil:

Gravity range—	Severance tax (per bbl.)
22 and below	$.06
Above 22 and not above 28	.07
Above 28 and not above 31	.07½
Above 31 and not above 32	.08
Above 32 and not above 36	.09½
Above 36 and not above 43	.10½
Above 43	.11

A tax of 11 cents per barrel is placed on distillate and condensate but not natural gasoline or casinghead gasoline, which is taxed at the rate of 1 cent per barrel, unless such tax is paid at some point other than at the well.

The tax of 0.3 cent per 1,000 cu. ft. of gas produced is continued, excepting on gas injected into the earth in the state for the purpose of storage, recycling, repressuring or lifting oil. In addition to the taxed gas, shall be added a volume of gas equivalent to the shrinkage from extraction of natural or casinghead gasoline.

A further tax of 0.5 cent has been placed on gas in a separate act, limited to 2 years. Excluded from taxation under this measure is gas used for the above purposes, and in addition gas used for fuel in connection with field operation and development for oil or gas, gas lawfully vented or flared and gas used in the manufacture of carbon black.

Although these taxes may impose hardships on many producers, the state points to the fact that they are considered temporary. In addition, under the provisions of a new conservation act, it is expected that through wider spacing, unitization, and recycling, operators in the state will effect considerable savings in development of production. An illustration is made of the recently formed Cotton Valley Agreement. Although adopted by operators prior to enactment of the conservation law, the agreement was strongly supported by the state, which would have brought about its adoption in any event under the new act. The agreement provides for field unitization of all hydrocarbons in the field below the Travis Peak formation. It will effect great savings in development, and will accrue to all signatory operators a larger recovery of condensate through pressure maintenance. It is anticipated that Cotton Valley will be a forerunner of several similar projects in the state over the next several months.

●

Bureau of Mines August Estimate 4.5 Per Cent More Than 1939

Motor-fuel demand in August is projected by the Bureau of Mines at 56,200,000 bbl., an increase of 4.5 per cent over the abnormally high requirements for the same month a year ago.

The daily average supply of domestic crude oil estimated to meet the market demand is 3,657,700 bbl., an increase of 1 per cent over the July estimate and 15,400 bbl. higher than the actual demand in August 1939.

Indications based upon forecasts of principal exporters are that shipments of motor fuel will continue downward. The bureau estimates 1,900,000 bbl. of motor-fuel exports for August, which is 100,000 bbl. less than the July estimate and 2,308,000 bbl. less than the actual exports for August 1930. The downward trend of exports is also in prospect for crude oil. The bureau calculates August crude exports will total 3,700,000 bbl., the same as the July estimate, but 2,289,000 bbl. less than the total shipments in August 1939.

In the breakdown of crude-oil production estimated necessary to meet August requirements the largest gain, 38,300 bbl. in daily average, was assigned to Illinois. Demand from Kansas is estimated higher by 7,400 bbl. and California by 4,500 bbl. The major reduction in demand is calculated for Texas which is down 13,000 bbl. to 1,326,400 bbl. daily for the month. Arkansas demand is estimated lower by 2,200 bbl., Louisiana, 2,000 bbl., and Oklahoma 1,300 bbl. daily.

Estimated daily average crude-oil demand by states for August, without regard for changes in storage, follows:

State—	Forecast— Aug. 1940	Forecast— July 1940	Actual Aug. 1939
Texas	1,326,400	1,339,400	1,433,800
California	598,400	593,900	626,200
Illinois	440,600	402,300	283,400
Oklahoma	402,600	403,900	456,400
Louisiana	276,100	278,100	281,100
Kansas	166,800	159,400	131,200
New Mexico	105,200	106,100	99,600
Wyoming	81,300	80,600	79,100
Arkansas	65,200	67,400	59,900
Michigan	57,100	61,600	60,400
Pennsylvania	48,000	47,900	54,800
Montana	20,600	18,100	19,200
New York	14,000	14,000	16,800
Kentucky	13,900	14,200	18,300
Mississippi	10,300	9,700	.....
Indiana	10,000	9,000	4,400
West Virginia	9,000	10,000	9,100
Ohio	8,000	8,000	5,100
Colorado	4,200	4,800	3,500
Total	3,657,700	3,628,400	3,642,300

Defense Commission Taking Steps To Increase Toluol Production

WASHINGTON, D. C.—Edward R. Stettinius, Jr., member of the National Defense Advisory Commission in charge of the raw-materials division, has announced that action is being taken to stimulate increases in the production of toluol from petroleum as this product is essential to the production of TNT. The matter was taken up at a meeting of the coal-tar-production subcommittee of the chemical advisory committee of the Army and Navy Munitions Board and the chemical and petroleum sections of the Defense Commission. It was decided to designate a central office to receive proposals for the manufacture of nitratable-grade toluene from responsible companies which may be considering entering this field. Such proposals will be entertained if the prospective contractor is prepared for production of large quantities of this product within 12 months of the contract date.

Outstanding Program for Welding Society Meeting in Cleveland

Announcement has been made by the American Welding Society that plans for its annual meeting, to be held in conjunction with the National Metal Exposition, Cleveland, Ohio, October 20 to 25, are now nearing completion, and that from present indications, this year's meeting will be one of the most outstanding in the history of the society. Headquarters for all technical sessions, committee meetings, and social events will be the Hotel Cleveland. Following the opening session on Monday morning, October 21, two simultaneous technical sessions will be held Monday afternoon, Tuesday and Wednesday mornings and afternoons, and Thursday and Friday mornings.
be presented at the 15 technical sessions.

Mississippi Leases Change Hands as Play Expands

By GEORGE WEBER

JACKSON, Miss., July 22.—New drilling activity scheduled for the east edge of the north end of the Tinsley field, Yazoo County, created interest during the week. A deep wildcat in Scott County, running high and coring in the Selma chalk formation, is the week's most interesting wildcat test. Leasing is increasing in Alabama, particularly along the southern edge of the state, and transfers of blocks and spreads in Northwest Alabama indicate early drilling in some cases. Geophysical activity is also on the gain in Alabama with over 10 crews active.

Mississippi geophysical shooting is declining slightly, with 57 parties reported working the state as of the week end. Leasing remains relatively active, with Jones County and the area to the south around Hattiesburg getting the best current play.

Gulf Refining Co. has purchased a spread in an Attala County block and plan to start a 5,000-ft. test by August 1. Kingwood Oil Co. may drill in Jasper County and the Harrison Oil Co. is reported to be interested in drilling a wildcat in Lowndes County, on what is known as the Columbia structure. Humble Oil & Refining Co. is leading in the taking of acreage in Mississippi at present, with activity centered around Jones County, and on the Gulf Coast, where an estimated 100,000 acres of Southern Kraft Co. lumber lands were reported taken. Tallahatchie County acreage totaling 90,000 acres was taken on a geophysical option last week by Roeser & Pendleton, who may select acreage and drill, on the basis of their findings.

Yazoo County continues to be an active wildcatting area, with a new test beginning by Joe Dawson, north of Tinsley, and another outpost, Rowan, Hope & Thompson, 1 Cook, is moving in materials to drill ¾ mile southwest of the Pickens field.

H. D. Easton has assigned 40,000 acres to Harrison & Abercrombie of Houston, divided among 11 structures, three in Northeast Mississippi and the remaining eight in Northwest Alabama. Amerada Petroleum Corp. has taken about 125,000 acres in Fayette, Walker, Winston and Marion counties, and added interest in Mobile County on the coast is evidenced by reports that the W. L. McClanahan test, now shut down at 6,541 ft., may be deepened to 8,500 ft.

MISSISSIPPI COMPLETIONS

Tinsley—Yazoo County

Hassie Hunt, 1-B Lammons, SW NE 1-10-3, 360 bbl., ¼-in. choke, tubing pressure 120 lb., casing pressure 170 lb., perforated 4,848-78 ft. and 5,446-62 ft., producing from Woodruff and Stevens sands.

E. C. Johnston, 4 Brumfield, 2-10-3, 455 bbl., ¾-in. choke, perforated Woodruff sand 4,800-12 ft., total depth 5,500 ft., plugged back 4,913 ft.

Tinsley Activity

Six new locations for east edge tests in the north part of Tinsley will be watched with considerable interest. The Magnolia Petroleum Co., through W. T. Hancock, Jr., has staked four locations on the J. J. Milner tracts in 6 and 7-10n-2e, and the Barnsdall Oil Co. has staked two locations in the T. R. Woodruff tract in 6-10-2 and 31-11-2, the latter an extreme northeast edge test. Barnsdall, 1 Woodruff is in an east offset location to Hassie Hunt, 1-B Lammons, which was recently completed for a good well.

An added outlet for Tinsley crude is indicated shortly as the E. C. Johnston refinery at Vicksburg approaches completion. Already 2,500 bbl. have been shipped by rail to the refinery site, awaiting completion of the plant. Other rumors of new refineries to charge Tinsley crude concern Col-Tex Refining Co. of Colorado, Tex., and the Constantine Refining Co. of Kilgore, Tex., both of which are believed interested in erecting skimming plants at Yazoo City to charge crude from the Slick-Urschel Oil Co. leases in the field. At present Tinsley, with an estimated potential production of 37,000 bbl. daily is producing only 7,000 bbl. daily, due to restriction of purchases. Much of the production now purchased is going into storage, according to reports. Although the field production is not prorated or restricted in any way by the state, the runs are considerably under wide-open flow. It is doubtful whether Tinsley could produce at the estimated potential flow as set for 63 wells, for reservoir pressure is low, and increased production would hasten the trend to pumping in the field. However, the field does offer a source of crude over a long period, for a small skimming plant.

MISSISSIPPI

Yazoo County

Barnsdall Oil, 1 T. R. Woodruff, NW NW 6-10-2. Loc.

Joe Dawson, 1 J. W. Mullican estate, C NW NW 19-11n-3w. Tent. loc.

W. T. Hancock, Jr. (Magnolia Petroleum), 1 J. J. Milner, 665 ft. S, 682 ft. E, NW cor. 7-10-2w. Loc.

Peterson Petroleum, 1 School Land, 16-10n-2e. Loc.

Rowan, Hope & Thompson, 1 Cook, 440 ft. S, 330 ft. E, NW cor. 6-11n-3e. M.I. rig.

Edward DeLoach, 1 Wilburn, 6-12n-3w. Loc.

Exchange Oil, 5 Wilburn, 440 ft. S, 220 ft. E, NW cor. 31-12n-3e. Set 10¾-in. csg. 449 ft.; drlg. 479 ft.

Hassie Hunt, 2-B Lammons, C NE NE 1-10-3. T. Perry sd. 5,345 ft.; set 7-in. csg. 5,425 ft.; W.O.C. 5,470 ft.

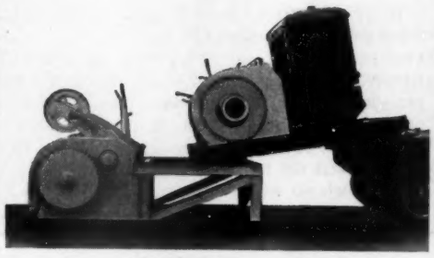
Kingwood Oil, 1 P. P. Shipp, 440 ft. W, 1,320 ft. S, NE cor. SW 4-10n-1e. Set 10¾-in. csg. 537 ft.; W.O.C.

C. L. Thompson, Rowan & Hope, 1 Joe Elliott-Mrs. Mary Edwards, 900 ft. S, 2,310 ft. W of NE cor. 30-10n-3w. No report.

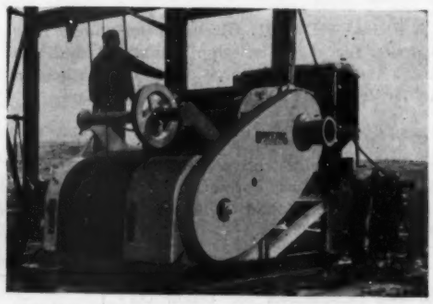
Union Production, 3 Cesana, 549 ft. N, 1,933 ft. E, SW cor. 18-10-2. Set 10¾-in. csg. 641 ft.; drlg. 1,207 ft.

Union Producing, 4 J. M. Twiner, C NE NW 1-10-3. Set 10¾-in. csg. 593 ft.; D.S.T. 4,832-96 ft.; rec. 200 ft. oil and 150 ft. oil and mud in Woodruff sd.; D.S.T. Lammons sd. 5,459-79 ft. rec. 2,390 ft. oil and 125 ft. drlg. fluid in 10 min.; W.P. 26 lb.; B.H.P. 560 lb.; killed and sqzd. perf. at 5,468-80 ft.; sqzd. and reperf. 5,468-78 ft.; flwd. 32 B.P.H., 3% B.S.; rng. tbg. to complete.

Union Producing, 5 Twiner, 2,019 ft. S, 2,118 ft. W, NE cor. 1-10-3. R.U.



Models U-17 and U-19 Easily and Quickly Combined



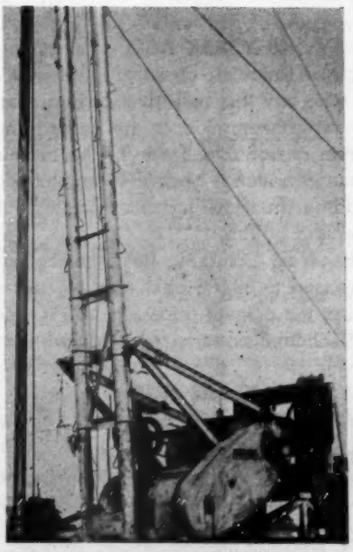
Models U-17 Service Hoist, and U-19 Auxiliary Spudder Unit Attached for Double Drum Service

UNIT RIG
PORTABLE DRILLING EQUIPMENT

For GENERAL WELL SERVICING

Illustrated Bulletins on Request

UNIT RIG & EQUIPMENT CO.
TULSA, OKLAHOMA



Model U-20 Telescoping Super Mast with Unit Rig U-17 and U-19 Combination in General Well-Servicing Use.

Model U-16 Combination Drilling and Servicing Unit Rotary Attachment is Available.

Personal Paragraphs

E. I. HANLON, Tulsa banker and oil man, sailed July 19 from Los Angeles, on the S.S. Lurline, for a vacation in Honolulu.

J. F. BARTHWICH, JR., has been named field engineer for the Mississippi State Oil and Gas Board, and will have charge of field operations in the Tinsley and Pickens fields of that state.

F. C. EMBSHOFF has been transferred to the position of administrative assistant of Shell Pipe Line Corp. He was formerly department supervisor of auditing and field accounting in the head office.

W. W. HAY, manager of pipe lines and communications for Union Oil Co., recently completed 25 years uninterrupted service with the company.

RUFUS CLARK, petroleum engineer of the Texas Co. for the Ventura, California, district, has been transferred to the Signal Hill petroleum engineers' office at Long Beach.

MALVIN G. HOFFMAN, formerly chief geologist for Midco Oil Corp., Tulsa, has joined the staff of Geochemical Service Corp., Tulsa, to become service engineer and sales geologist.

L. S. COLLINS, comptroller of the Carter Oil Co., was elected to the company board at a meeting held Friday. Mr. Collins became tax accountant and assistant chief accountant in 1919, and comptroller in 1931.

DARWIN BENEDUM, geologist for Benedum-Trees Oil Co. at San Antonio, Tex., returned by plane from the Democratic convention at Chicago last Saturday to end an extensive vacation in Canada and eastern states. In Pennsylvania he visited his uncle, M. L. BENEDUM, at Pittsburgh.

L. A. APPLEY, director of education and training for Socony-Vacuum Oil Co., Inc., with offices in New York, was a visitor in Los Angeles, Calif., this week en route to participate in conferences at the graduate school of business at Stanford University. While in Los Angeles he spent some time with C. A. TURNEY, who is manager of training and merchandising for General Petroleum Corp., Socony's California affiliate.

N. C. McGOWEN, president of United Gas Pipe Line Co., Shreveport, La., has been elected a member of the board of directors of the Louisiana State Fair.

W. T. LEEPER, sales manager with Bayou State Oil Corp., Shreveport, La., has been named vice president in charge of sales by PAUL M. BROWN, president. Mr. Leeper, in his 4 years' experience with the company, has traveled all of the 48 states and most of the provinces of Canada. He first entered the oil business in 1927, with Crystal Oil Refining Corp., Shreveport, and later associated with Continental Oil Co.

C. V. CONNER has been promoted to the position of superintendent of Mountain States Gas Co., a subsidiary of Pure Oil Co., succeeding O. M. LOVELL, who is retiring. Headquarters of the superintendent are at Dawes, W. Va.

LESTER M. GOLDSMITH, chief engineer of Atlantic Refining Co., has been appointed a member of the executive power division, American Society of Mechanical Engineers. He has also been appointed a member of the American Institute of Electrical Engineers convention committee.

NEIL BUCKLEY, vice president of the Taylor Refining Co. in charge of plant sales, and HOWARD FELT, secretary of the Warren Petroleum Co., with offices in Taylor, Tex., and Tulsa, respectively, visited together among refineries in the Corpus Christi, Tex., area early in the week and then spent a day fishing out of Port Isabel, Tex.

COXEY EVANS, district superintendent for Cities Service Oil Co., and M. A. WRIGHT, division engineer for Carter Oil Co., addressed the Seminole chapter of the American Petroleum Institute July 12 on the problems and difficulties encountered in plugging off Wilcox water and either deepening to the second Wilcox or plugging back to the dolomite.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

The resignation of John J. Carter as president of Carter Oil Co. was accepted at a meeting of directors in Titusville, Pa., and A. F. Corwin, Pittsburgh, was elected to succeed him. Offices of the company will be removed to Sistersville, W. Va.

Guy T. Berry, formerly active in southeastern Kansas fields but who has been fighting ill health for many years, is so much better that he is fishing at Ponco Manor, Pa., according to a message from Independence, Kans., his home.

Vance E. Rowe, a popular Gulf Pipe Line man, was a business visitor in the Nowata field, Oklahoma, this week.

20 YEARS AGO

A movement for rationing of gasoline is advocated by certain refiners who say this will give a chance for production to keep nearer consumption, in the years to come, and keep prices within reasonable limits for the consumer. It is proposed to issue a national appeal to automobile owners to curtail joy riding. In some localities gasoline is selling from 27 to 39 cents a gallon.

A well in the West Columbia field, Texas, came in at 20,000 bbl., increased to 33,000 bbl., with bit and drill stem in the hole, and at the present price of crude it produced oil valued at $630,000 in 8 days, a new record for the Gulf Coast.

10 YEARS AGO

At the recent annual meeting of Sunray Oil Corp., Clarence H. Wright, Tulsa, vice president of the organization's operating subsidiary, was elected president, succeeding Crosby Glage, New York, who became chairman of the board.

Gulf Oil Co. has asked for cancellation of the concession to search for oil in Panama, bringing to an end many years of unsuccessful exploration on the isthmus.

O. F. ELLZEY, field superintendent for Shell Oil Co., Inc., in the Hackberry district, coastal Louisiana, has been transferred to the New Iberia district.

J. M. GREER, chief counsel for Gulf Oil Co., Pittsburgh, Pa., and Mrs. Greer sailed on the Santa Paula which left New York July 19 for a 12-day cruise to Bermuda, Curacao and several Venezuelan ports.

JOHN H. BLAFFER, JR., independent operator of Houston, Tex., landed on the West Coast on his return to Houston from a honeymoon trip to Honolulu.

WILLARD GILL, geologist for Pure Oil Co., formerly stationed in Illinois, has been transferred to the Cumberland district in southern Oklahoma where the company's activities are steadily increasing.

FREDERICK J. WOLFE, chairman and managing director of Anglo-American Oil Co., Ltd., London, England, has retired from service. A Canadian by birth, he went to London in 1931 to take over the posts he held until retirement.

SID W. RICHARDSON, independent operator of Fort Worth, Tex., reported to Chicago police that his pockets had been picked of $1,000 in currency while he was attending the Democratic convention as a delegate-at-large from Texas.

J. L. LAMB, for several years assistant central division manager for Signal Oil Co., was recently promoted to assistant to the general sales manager and will maintain offices in Los Angeles, Calif., at the headquarters of the company.

ROBERT RANKIN, mechanical engineer for Shell Oil Co., Inc., has been transferred from the company's Tulsa office to Lyons, Kans.

EARL N. SONNESYN, formerly in the fuel-oil department of Midwest Oil Co., has opened a branch office for Saunders Petroleum Co. in Minneapolis, Minn.

O. H. REAUGH, formerly district engineer at Seminole, Okla., for Gulf Oil Corp., has been transferred to Centralia, Ill., where he will assume the same duties.

EDWARD J. GALLAGHER, who was formerly in charge of well-reconditioning work for Gulf Oil Corp., at Seminole, Okla., was promoted to the new position of district engineer on July 15.

D. J. SMITH, vice president of the Pan American Petroleum & Transport Co., with offices in New York City, recently held a business meeting of company executives in the Texas City, Tex., refinery offices of the company.

C. R. NICHOLS, formerly district geologist for Sun Oil Co. at McAllen, Tex., has resigned to engage in consulting work and will maintain headquarters at McAllen. L. C. SMITH, formerly of the Dallas, Tex., office, succeeds him as district geologist.

E. J. DAHLGREN, valuation engineer for the Securities and Exchange Commission at Washington, D. C., spent a portion of his vacation renewing acquaintances in Tulsa. He was formerly director of conservation for the Kansas Corporation Commission.

W. C. CHANCELLOR, land man for Sinclair Prairie Oil Co. at Oklahoma City, Okla., for the past 12 years, has been transferred to Midland, Tex. C. W. HORSTMIER, stationed in the company's Baton Rouge, La., office, and formerly located at Enid, Okla., will take over Mr. Chancellor's duties at Oklahoma City.

Began During Vacation

One of the most active figures in the Appalachian region's oil and gas fraternity is Frank McKain Brewster, president and general manager of the Belmont Quadrangle Drilling Co., Bradford, Pa., who has just completed his thirtieth year in the industry. Mr. Brewster began his career in the oil and gas industry in 1909 when he spent his summer vacation painting well connections for the Hope Natural Gas Co. He worked for this company each summer until his graduation from Weston, W. Va., high school in 1913 and West Virginia University, Morgantown, in 1917 as a mechanical engineer.

FRANK McKAIN BREWSTER

In 1919 Mr. Brewster was appointed a district superintendent for the Hope Natural Gas Co. In 1923 he went with the U. S. Bureau of Mines as petroleum technologist. He was appointed chief petroleum engineer in 1926.

Mr. Brewster left the federal service when he became general manager for the Petroleum Reclamation Co., operating in the Bradford field, in 1927. In 1931 he became president of the Belmont Quadrangle Drilling Co., which opened the first Oriskany sand gas pool in the East at Dundee, N. Y., in February 1930. Mr. Brewster is also president of the Otis Eastern Service, Inc., which was organized in May 1937, for tubing and drilling oil and gas wells under pressure, cleaning out, swabbing, and abandoning.

Mr. Brewster organized and was the first chairman of the Eastern District, Division of Production, of the American Petroleum Institute in 1927. He is also a past president of the Pennsylvania Natural Gas Men's Association, a member of the A.I.M.E., and the Engineers' Society of Western Pennsylvania. He is also a Mason, Shriner, Legionnaire, member of the 40 et 8, and Beta Theta Pi.

R. G. MOSS, geologist for Phillips Petroleum Co. and formerly located at Evansville, Ind., has been transferred to the company's main office at Bartlesville, Okla.

JOHN W. de GROOT, formerly chief engineer at the Bayonne, N. J., refinery of Standard Oil Co. of New Jersey, has been transferred to the Tuscarora Oil Co. at Harrisburg, Pa., as chief engineer and assistant to the president.

GEORGE PARKER, San Antonio, Tex., oil man, had a "raising" on Monday, July 22. Several out-of-town friends including CLYDE PAPE, Tulsa, went to San Antonio for the event.

JOHN BELCHER, in the production department of Carter Oil Co., Tulsa, sailed last week from New York City to Maracaibo, Venezuela, to assume his new duties with Standard Oil Co. of Venezuela.

F. C. (CASEY) JONES, formerly district engineer at Oklahoma City, Okla., for Phillips Petroleum Co., has been made well-servicing superintendent of the district in which capacity he directs the efforts of all pulling crews and roustabouts.

A. B. VANHOOSER, field superintendent for Humble Oil & Refining Co. in the Kelsey field, Gulf Coast Texas, was seriously injured in an automobile accident near Alice, Tex., late last week. At the week end physicians reported his condition as improved.

L. A. CRANSON, vice president of the Honolulu Co., was elected president of the California Petroleum Safety Board at its recent annual meeting. Vice presidents elected at the meeting were W. C. WHALEY, Barnsdall Oil Co.; L. L. AUBERT, Bankline Oil Co.; A. S. HAYES, Bell & Loffland. R. W. METCALF, Signal Oil Co., was elected treasurer, and PAUL STANLEY, Barnsdall Oil Co., was made secretary.

WALDON SMITH, vice president of Luling Oil & Gas Co., San Antonio, Tex., heads the new Jackson, Miss., offices for the company. GEORGE CANNON, attorney, and C. W. MAGALIS, geologist, have also been transferred to Jackson.

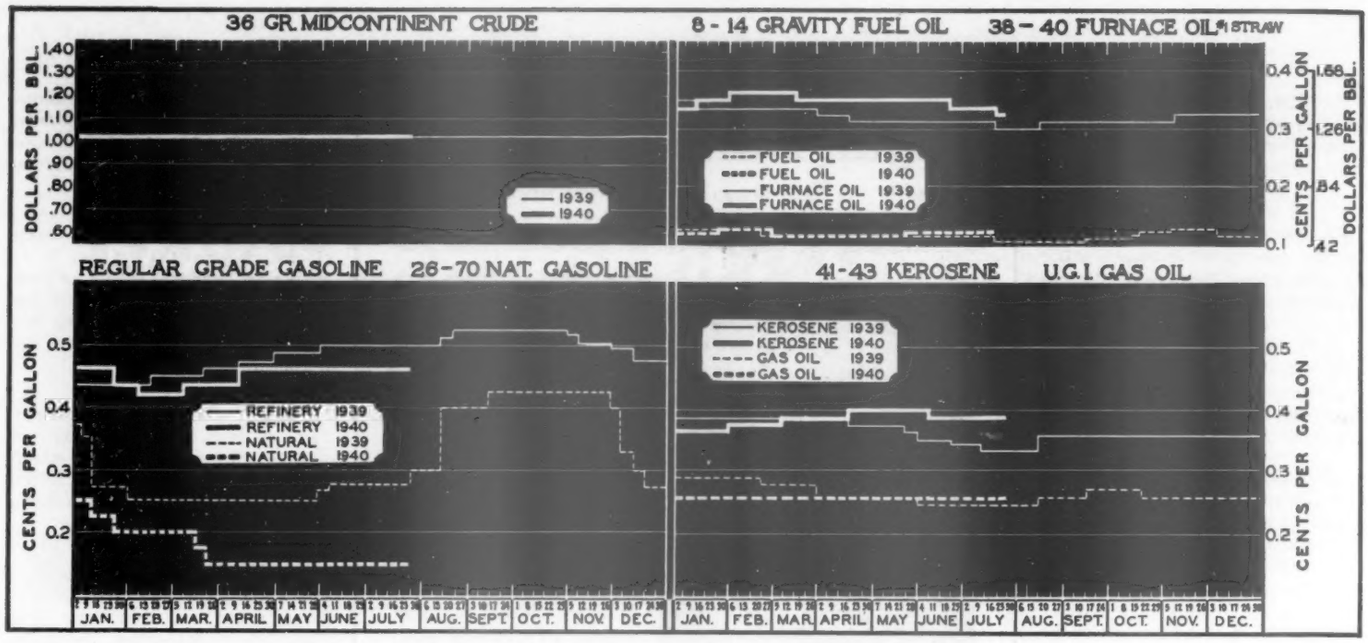
Shifts: W. P. McGINNIS, land and lease department, Indian Territory Illuminating Oil Co., from Tulsa to Bartlesville, Okla.; JAMES E. HUGHES, president Hughes Oil Co., from Roswell, N. M., to Chicago; F. E. THOMPSON, superintendent Warren Petroleum Corp., from Fairbanks, Tex., to Salem, Ill.; B. A. GRAINGER, superintendent J. M. Rush Co., from Longview, Tex., to Dallas, Tex.; MARK H. O'CONNELL, geologist Cities Service Oil Co., from Crowley, La., to Lake Charles, La.; E. C. HEIDRICK, JR., manager Black-Knight Oil Co., from Peoria, Ill., to North Point, Mich.; M. H. CHRISTENSEN, geologist Seismic Explorations, Inc., from Brookhaven, Miss., to Columbia, Miss.; C. L. WHITEMAN, engineer Indian Refining Co., from Greenwood, Miss., to Gravity Meter Explorations Co., Newton, Miss.; HARRY H. SHARKEY, engineer the Texas Co., from Woodsfield, Ohio, to Mineola, Tex.

R. L. BENOIT, Ohio Oil Co., has been named agent for service of process with the operators committee of the Cotton Valley field, North Louisiana where gas recycling will start shortly.

GEORGE J. TURNER has assumed duties as general superintendent of the Philtex division of Phillips Petroleum Co. with headquarters at Bartlesville, Okla. Mr. Turner has occupied a superintendent's position in many areas, including the Texas Panhandle and Evansville, Ind., and more recently at Seminole, Okla. H. F. ZION, formerly well-servicing superintendent in the Seminole district, replaces him as superintendent. S. J. BETZER has been appointed assistant superintendent of the Philtex division at Bartlesville.

JAMES R. D. EDDY, state director of trade and industrial education for Texas, in cooperation with representative oil men and the faculty of Texas A. & M. College, is working out plans for a program of vocation education for practical oilfield experience at Kilgore College, Kilgore, Tex. W. O. O'ROURKE will instruct in classes and JOHN WOODRUFF, petroleum engineer, will coordinate class work with work experience in the East Texas oil field.

C. A. HILL, formerly production superintendent for Magnolia Petroleum Co. in the Alice, Tex., district, has been transferred to Wewoka, Okla., to take charge of the company's operations in the Greater Seminole district following the consolidation of the St. Louis, Okla., and Wewoka offices at the latter city. He replaces O. H. STOUT, who has been transferred to Lovington, N. M. WILLIAM HOSKINSON, production superintendent of the St. Louis district for several years, has retired.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Uncertainty of Crude-Oil Price Favors Buyers in Group 3 Refined Market

By H. STANLEY NORMAN

UNCERTAINTIES over the crude-oil price turned Group 3 even more definitely than before this summer into a buyers' market. Gasoline buying was more active at the start of the week.

One or two grades of light fuel oil turned softer. The few cars sold in the spot market 2 weeks ago appear to have satiated the immediate demand. The low-gravity, high-boiling tractor fuels and light furnace oils were available this week or actually sold at an eighth of a cent below previous prices.

Light Fuels Stored

Several Mid-Continent refiners currently are storing light fuel oils rather than sell on a weakened market. Movement of burning oils to the northern market will start during the latter part of August or first half of September, leaving probably not more than 6 weeks of depressed activity for these products. Several refiners are in a position to store fuels against prospects for better prices in the fall.

The position of natural gasoline in the Oklahoma district grew a little stronger this week. Refiners in Kansas are coming to Oklahoma natural-gasoline producers for more abundant supplies. Prices for movement within the freight-differential territory are considered firm. It is pointed out, however, that the range of movement from Oklahoma natural plants is definitely limited, particularly on the south. North Texas and Panhandle gasoline-plant operators have found no relief in recent weeks from the oversold Gulf Coast market.

One refiner on the Gulf expressed belief that coastwise movement of natural may start in the near future. In the event northern movement of natural is started in the near future and in any appreciable volume the Texas market may be strengthened but at the moment it is in poor condition.

Low-octane gasoline was offered from a few quarters at an eighth of a cent below last week's prices. Reports were heard that one or two suppliers were willing to load U. S. motor gasoline for 3⅛ cents.

Regular and premium grades of motor fuel are holding their market positions without particular difficulty. Movement into consuming channels is reported satisfactory by Group 3 refiners. Demand by jobbers is not quite up to expectations due largely to the fact that they are still drawing on tax-paid supplies ordered shipped on the last few days of June.

Refined Oil Market Barometer

Crude price trends in the Southwest are minimizing activity in the refined market. A few grades of light fuel oil in Group 3 territory lost an eighth of a cent. Heavy fuel oil at Los Angeles increased 15 cents by largest marketer. Natural-gasoline market in Oklahoma stronger.

MID-CONTINENT. Oklahoma bright-stock prices lower a cent per gallon.

EAST COAST. Gasoline price-shading reported. Fuel oils steady at unchanged prices.

GULF COAST. Inquiries more active for next winter's fuel-oil supplies.

PENNSYLVANIA. Lubricating-oil market withstands pressure after recent downward revisions.

CALIFORNIA. Heavy fuel oil advanced 15 cents by Standard of California at Los Angeles.

CHICAGO. Gasoline quiet. Interest gaining in light and residual fuel oils.

Since the early-July purchase of 450 cars of regular gasoline by one of the major companies there has been no additional business of this nature reported in the spot market. Major companies, however, are taking their regular deliveries from independent suppliers.

From all parts of the country reports come that gasoline consumption is attaining new peaks as each week of the summer passes. Stocks in the hands of refiners and at terminals are still too abundant to even consider an upward movement of the market. On the other hand, buyers are showing no particular resistance to current quotations and evidently feel they are getting a bargain on supplies.

Bright Stocks Reduced

Oklahoma bright stocks were lowered a cent per gallon on July 19 in sympathy with the market for Pennsylvania lubricating oils which had been reduced a week earlier. Neutrals, paraffin oils and blended stock held their previous market position.

Crude-price uncertainties are working to the disadvantage of refiners. The producers of products are caught in a crosscurrent of influences. The inclination is to keep products moving if business can be had without price concessions. On the other hand, it cannot be definitely determined what action regulatory bodies may take if the scattered crude-price cuts are widely adopted.

If producing fields were to be shut down as they were a year ago there would be an almost immediate reaction in the market for refined products. It is conceded by statisticians that present stocks are sufficient to withstand any reasonable shutdown period but the psychological effect would be prompt. A simultaneous stiffening of refined prices would doubtless come with any drastic curtailment of production.

Gasoline Price-Shading Spreads Along Northeastern Seaboard

By J. P. O'DONNELL

NEW YORK, July 23.—The ultimate effect of last week's crude-oil-price reductions in Texas apparently left eastern refinery circles in a quandary. Some pointed to the steady decline in Gulf Coast gasoline prices since late April as sufficient justification for the reduction while others expressed the belief that the reduction in crude prices would result in further weakness of the gasoline structure. There was no apparent immediate effect, however, with the possibility remaining that it will develop when and if the reductions are extended or if steps are taken to curtail crude-oil production.

While gasoline of 72-74 octane is generally quoted at a range of 5¾ to 6¼ cents in the New York Harbor area at present there were reports during the past week that this price could be shaded and that supplies could be obtained at 5½ cents. Late in the week it was reported that a "substantial quantity" of 70-72-octane gasoline had been obtainable at 5 cents. There was no confirmation of sales at these prices, however, and the generally quoted prices were maintained.

There were several factors substantiating reports of weakness in the gasoline markets, both wholesale and retail. Trouble was believed brewing in retail markets because some dealers absorbed the recently imposed additional half-cent federal tax themselves instead of passing it on to the consumer. Since margins, according to some dealers, were already precariously narrow, this policy may develop trouble of consequence.

Another unfavorable factor affecting the East Coast gasoline situation was the increase in refinery gasoline storage during the second week of July. Stocks moved up to 22,671,000 bbl., an increase of 385,000 bbl. from the previous week. Even though this increase amounted to less than 2 per cent, it was viewed with concern since it came at a time when reductions are normally in order.

The third unfavorable factor is the Bureau of Mines' estimate of gasoline demand in August. "Motor-fuel demand (domestic) probably will not be comparable with actual consumption for the individual months of the summer of 1940," the report states. "Anticipation of the ½-cent increase in the federal tax on gasoline, which was effective July 1, probably resulted in large purchases of gasoline in June. The effect of this should be absorbed largely in July, although some of the effect may linger into August. The increase in August is estimated to be only about 4½ per cent over the abnormally high demand for August 1939." This anticipated increase contrasts with predictions of 7 and 8.5 per cent gains in June and July, respectively.

Increases in gas-oil and distillate and residual-fuel-oil inventories continued. Gas-oil and distillate stocks were reported up to 11,775,000 bbl., an increase of 1,254,000 bbl., and residual-fuel-oil stocks were reported up to 10,270,000 bbl., a gain of 616,000 bbl. These levels are substantially above those of a year ago when gas-oil and distillate stocks in the East Coast area totaled 10,600,000 bbl. and residual-fuel-oil inventories were 8,880,000 bbl.

There were several reductions in fuel oil and kerosene tank-wagon prices last week. Standard Oil Co. of New Jersey reduced the New Jersey prices on No. 1 fuel oil 0.3 cent and on Nos. 2 and 3 fuel oil 0.35 cent, lowered the price of kerosene at Baltimore ½ cent and reduced all fuel-oil prices in Virginia ½ cent. New Jersey fuel-oil prices are now 7.7 cents for No. 1 and 6.4 cents for Nos. 2 and 3.

There were some conflicting reports current during the past week on Bunker C fuel-oil prices though they continued to be quoted in a range of from $1.25 to $1.35 per barrel. One report indicated that virtually all sellers would meet the $1.25 price while another indicated that the currently quoted low was temporary to meet contract buying. The anticipated effect of the rearmament program on heavy fuel oil has not been noticeable to any large degree and with inventories on the increase the prospects of any great improvement were still considered remote.

The undertone of the Gulf-to-north-of-Hatteras tanker market continues soft with chartering at a minimum. A clean tanker scheduled for July 24 loading was reported chartered on the basis of 25 cents a barrel for 30-gravity crude, 21 cents on gasoline, 22 cents on kerosene and 23 cents on heating oil. These prices have dropped abruptly in recent weeks but further declines of any size are not anticipated. For this reason, the adverse effect of declining tanker rates on fuel oil and kerosene prices is believed to have been halted.

Belief that the wax market had about reached bottom was voiced by several sources. One supplier reported that he was sold up into August. Despite these views, however, both white and yellow scale wax were reported available at 2⅝ cents per pound, off from the previous week. Refined grades were reported unchanged from the week before but prices were believed to be easier. Export business, vital to a profitable wax market, continues dull. There was also evidence of weakness in some grades of petrolatums with reductions in the low quotations of these particular products.

Reports current early in the week that substantial interrefinery buying of Pennsylvania lubricating oils was impending were refuted later in the week when further reductions in bright stock and neutral quotations were reported by one important supplier. The current low quotations on bright stock were reported as follows: Inland refineries—25-pour bright stock, 12 cents; 15-pour, 13½ cents; 10-pour, 14½ cents; 600 steam refined, 8 cents; 650 steam refined, 10 cents; 600 flash, 11

(Continued on Page 223)

Gulf Coast Markets

HOUSTON, Tex., July 23.—Substantial purchases of aviation gasoline were reported being made out of the Gulf Coast at the close of the week. A check indicated that two cargoes and 50,000 drums (50-gal.) had been bought from Corpus Christi refiners, two cargoes from refiners in the Houston district, and approximately 110,000 drums (50's) from Port Arthur.

Cities Service was reported as being the major purchaser and as this company has several Japanese contracts it was assumed by observers that this company's material would go to Japan. Although there was no definite verification of the destination of the material, intimations of sellers tended to bear out the assumptions. Some of the gasoline, however, was reported bought for British movement, and some is scheduled to move in coastwise trade.

Practically all the material is to be taken out before September, it is reported, and it was said that buyers were anxious to move it as quickly as possible. One tanker was reported loading on this purchase over the week end.

While the exact price was not revealed it is supposed to be around 6¼ cents. One seller said the price was low but that it afforded a small profit. Nominal quotations on aviation gasoline have been maintained generally around 7 cents until now.

In addition to the purchases actually made, inquiries for additional material, both for export and domes-

(Continued on Page 223)

A.P.I. Weekly Refinery Statistics

Week Ended July 20, 1940

	Capacity reporting (per cent)	Total gasoline stocks (bbl.)	Residual fuel-oil stocks (bbl.)	Gas oil and distillate stocks (bbl.)	Daily crude runs (bbl.)
East Coast	100.0	22,054,000	10,365,000	12,460,000	558,000
Appalachian	91.0	3,586,000	490,000	333,000	119,000
Ind., Ill., and Ky.	90.2	15,847,000	3,431,000	4,119,000	590,000
Okla., Kans., and Mo.	76.9	6,714,000	2,053,000	1,358,000	269,000
Inland Texas	59.6	1,773,000	1,336,000	339,000	114,000
Texas Gulf	85.3	13,958,000	5,998,000	5,588,000	827,000
Louisiana Gulf	97.6	2,646,000	1,316,000	1,221,000	112,000
N. Louisiana and Ark.	51.5	514,000	491,000	268,000	41,000
Rocky Mountains	55.5	1,190,000	564,000	124,000	41,000
California	87.3	16,477,000	77,595,000	10,034,000	485,000
Total reported	85.3	84,759,000	103,639,000	35,844,000	3,156,000
Est. unreported	.....	7,030,000	2,225,000	1,660,000	384,000
*Est. total	.....	91,789,000	105,864,000	37,504,000	3,540,000
*Est. total previous wk.	.....	92,372,000	105,710,000	36,221,000	3,565,000
*July 21, 1940	.....	78,789,000	114,406,000	34,000,000	3,385,000

*Bureau of Mines.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ended July 13, 1940	260,994,000 barrels
Week ended July 6, 1940	261,632,000 barrels
Week ended July 15, 1939	268,119,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of July 23, 1940

Taxes

The gasoline quotations given in the following tables include the 1½-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline Tank wag.	Gasoline Dlr.	Gasoline Incl. tax	Kero. tank wag.
Chicago, Ill.	15.6	13.6	4.5	10.0
Decatur	14.1	12.6	4.5	9.5
Joliet	15.6	14.1	4.5	10.0
Peoria	15.6	13.2	4.5	10.0
Quincy	15.4	13.9	4.5	9.8
Davenport, Ia.	15.6	14.1	4.5	‡10.0
Des Moines	15.4	13.9	4.5	‡9.8
Mason City	15.8	14.3	4.5	‡10.2
Duluth, Minn.	17.4	15.9	5.5	10.8
Mankato	17.0	15.5	5.5	9.0
Minneapolis	17.0	14.0	5.5	10.4
LaCrosse, Wis.	17.0	15.5	5.5	10.4
Green Bay	17.4	15.9	5.5	10.3
Milwaukee	16.8	15.3	5.5	10.2
Detroit, Mich.	14.1	12.6	4.5	7.6
Grand Rapids	13.7	11.7	4.5	9.0
Saginaw	14.7	13.2	4.5	9.3
Evansville, Ind.	17.1	15.6	5.5	†10.5
Indianapolis	17.3	14.8	5.5	†10.2
South Bend	17.3	15.8	5.5	†10.2
Fargo, N. D.	18.2	16.7	5.5	11.6
Huron, S. D.	17.5	16.0	5.5	10.9
Kans. City, Mo.*	14.9	13.4	4.5	8.0
St. Louis*	15.2	13.2	4.5	8.0
St. Joseph	14.9	12.5	4.5	7.9
Wichita, Kans.	13.8	12.1	4.5	7.0

*State tax 2 cents, 1-cent city tax, and 1½-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off; minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective April 18, 1940, f.o.b. Chicago, tank-wagon prices: Standard heater oil, 1-99 gal., 8.75 cents; 100-149 gal., 7.75 cents, 150 gal. and over, 7.25 cents. Stanolex fuel oil No. 1, 1-99 gal., 8.5 cents; 100-149 gal., 7.5 cents; 150-399 gal., 7 cents; 400 gal. and over, 6.5 cents. Stanolex furnace oil, 1-99 gal., 8.5 cents; 100-149 gal., 7.5 cents; 150-399 gal., 7 cents; 400 gal. and over, 6.5 cents. Stanolex fuel oil A, 1-399 gal., 5.5 cents; 400-799 gal., 4.5 cents; 800 gal. and over, 4.25 cents. Stanolex fuel oil B, 1-399 gal., 5.5 cents; 400-799 gal., 4.5 cents; 800 gal. and over, 4.25 cents. Stanolex Bunker C fuel oil, 1-999 gal., 4.25 cents; 1,000 gal. and over, 3.25 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline Cons'r tank wag.	Gasoline Dlvided dlr.	Gasoline Incl. tax	Kero. tank wag.
Ohio points	16.0	15.0	5.5	*9.0

*Includes state tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline Cons'r tank car	Gasoline Dlr. tank wag.	Gasoline Incl. tax	Kero. tank wag.
Atl'tic City, N. J.	12.1	13.2	4.5	7.7
Newark	12.1	13.2	4.5	7.7
Annapolis, Md.	13.85	14.85	5.5	9.5
Baltimore	13.25	14.25	5.5	8.5
Cumberland	14.65	16.65	5.5	10.0
Wash'gton, D. C.	11.50	12.50	3.5	9.5
Danville, Va.	15.45	17.95	6.5	11.0
Norfolk	14.25	16.75	6.5	10.5
Petersburg	14.55	17.05	6.5	11.2
Richmond	14.55	17.05	6.5	10.5
Roanoke	15.75	18.25	6.5	11.0
Charles'n, W. Va.	15.05	17.55	6.5	12.6
Parkersburg	14.35	15.85	6.5	11.2
Wheeling	15.35	17.25	6.5	11.8
Charlotte, N. C.	17.40	17.50	7.5	11.8
Hickory	17.95	19.45	7.5	12.3
Mt. Airy	17.80	19.30	7.5	12.2
Raleigh	17.15	16.5	7.5	11.5
Salisbury	17.45	16.50	7.5	11.9
Charleston, S. C.	15.25	17.75	7.5	9.75
Columbia	16.10	18.60	7.5	11.5
Spartanburg	16.80	19.30	7.5	12.7

Price basis to Essolene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gal., consumer tank-wagon price at time and place of delivery; 100,000 gal. per year, consumer tank-car price plus 0.5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less 0.5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gal. or more, consumer tank-wagon price. Single deliveries of less than 50 gal., 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less 0.5 cent per gallon. The above policy also applies in South Carolina, effective January 23, 1939.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline Cons'r tank wag.	Gasoline Net dlr.	Gasoline Incl. tax	Kero. tank wag.
Atlanta, Ga.	16.5	16.5	7.5	10.0
Augusta	17.5	17.5	7.5	10.0
Macon	15.0	15.0	7.5	10.0
Savannah	16.5	16.5	7.5	9.0
Birmingham, Ala.	18.0	18.0	8.5	9.0
Mobile	18.0	18.0	9.5	8.0
Montgomery	18.5	18.5	9.5	10.0
Jackson, Miss.	16.5	16.5	7.5	9.5
Vicksburg	16.5	16.5	7.5	9.0
Jacksonville, Fla.	16.0	16.0	8.5	8.0
Miami	16.0	16.0	8.5	8.0
Pensacola	18.0	18.0	9.5	8.5
*Tampa	20.5	17.5	8.5	8.0
Lexington, Ky.	16.0	16.0	6.5	10.0
Covington	15.0	15.0	6.5	9.5
Louisville	15.0	15.0	6.5	9.0
Paducah	15.5	15.5	6.5	9.0

Price basis to tank-wagon consumers, effective January 4, 1937, 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

*Temporary discounts to tank-wagon consumers in Tampa 3 cents per gallon below consumer tank-wagon price on Crown gasoline.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline Cons'r tank car	Gasoline Dlr. tank wag.	Gasoline Incl. tax	Kero. tank wag.
Philadelphia, Pa.	12.5	14.0	5.5	10.5
Pittsburgh	13.5	15.0	5.5	10.5
Allentown	13.5	15.0	5.5	10.5
Erie	13.5	15.0	5.5	10.0
*Scranton	13.0	14.5	5.5	10.5
Altoona	13.5	15.5	5.5	10.5
Dover, Del.	...	14.5	5.5	10.5
Wilmington	...	14.0	5.5	10.0

Price basis to undivided dealers, dealer tank-wagon price less 0.5 cent per gallon.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time.

*Voluntary discount of 1 cent allowed to dealers only.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline Tank truck	Gasoline Serv. sta.	Gasoline Incl. tax	Kero. tank wag.
San Francisco	16.5	17.5	4.5	11.5
Los Angeles	16.0	17.0	4.5	10.0
Fresno, Calif.	17.5	18.5	4.5	12.5
Phoenix, Ariz.	20.5	21.5	6.5	*17.5
Reno, Nev.	19.5	20.5	5.5	13.5
Portland, Ore.	19.0	20.0	6.5	13.5
Seattle, Wash.	19.0	20.0	6.5	13.5
Spokane	20.5	21.5	6.5	16.5
Tacoma	19.0	20.0	6.5	13.5

*Includes 5-cent state tax.

Discount to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gal. and over, advance quantity discount extended at time of delivery, 3 cents. Service-station schedule applies on single deliveries less than 40 gal. On kerosene in tank-car, transport-truck, and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank wagon.

March 18, 1939, split dealer discount was canceled.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline Cons'r tank car	Gasoline Dlr. tank wag.	Gasoline Incl. tax	Kero. tank wag.
Albany	11.7	13.5	5.5	7.9
*Met. N. Y.: Manhat., Bronx, Queens, Brklyn., Staten Island	12.2	12.7	5.5	8.2
Buffalo	12.8	13.6	5.5	8.0
Rochester	13.3	14.2	5.5	8.5
Syracuse	12.7	13.9	5.5	8.7
Portland, Me.	11.7	13.8	5.5	8.0
Manchester, N.H.	12.4	12.5	5.5	8.8
Burlington	12.4	14.5	5.5	8.5
Boston, Mass.	10.8	11.8	4.5	8.3
Worcester	11.3	12.1	4.5	8.4
Hartford	11.0	12.0	4.5	8.1
New Haven	10.9	11.9	4.5	8.1
Providence, R. I.	10.7	12.2	4.5	8.3

*Does not include 2 per cent city sales tax, which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Effective February 15, 1939, the company changed its commercial consumer policy in New York and in New England points for tank-wagon delivery to the following: Annual purchases 10,000 gal. and under, tank-car price plus 2 cents per gallon; annual purchases 10,000 gal. up to 50,000 gal., tank-car prices plus 1.5 cents per gallon; annual purchases 50,000 to 200,000 gal., tank-car price plus 1 cent per gallon; annual purchases 200,000 gal. and over, tank-car price plus ⅛ cent per gallon. Private consumers pay undivided dealer price, plus 2 cents per gallon. Private consumers receiving full compartment deliveries of at least 200 gal. receive a discount of ½ cent per gallon.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline Tank wag.	Gasoline Dlr.	Gasoline Incl. tax	Kero. tank wag.
Denver, Colo.	15.5	...	5.5	10.5
Grand Junction	17.5	...	5.5	12.5
Pueblo	15.5	...	5.5	9.0
Casper, Wyo.	16.5	...	5.5	11.5
Cheyenne	14.5	...	5.5	11.0
Billings, Mont.	17.5	...	6.5	11.0
Butte	15.5	...	6.5	13.0
Great Falls	17.5	...	6.5	12.0
Helena	16.5	...	6.5	12.5
Salt Lake, Utah	16.0	...	5.5	14.0
Boise, Idaho	20.6		6.5	16.0
Twin Falls	21.6	21.6	6.5	16.5
Albu'que, N. M.	16.0	...	6.5	9.5
Roswell	14.0	14.0	7.0	8.0
Santa Fe	17.0	...	7.0	10.0

*Includes city tax of 0.5 cent. †Includes state tax of 1 mill.

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline Cons'r tank car	Gasoline Dlr. tank wag.	Gasoline Incl. tax	Kero. tank wag.
New Orleans, La.	14.25	16.75	8.5	†11.0
Baton Rouge	15.25	17.75	8.5	‡10.5
Alexandria	15.25	17.75	8.5	‡10.5
Lafayette	15.50	18.00	8.5	‡10.0
Lake Charles	15.25	17.75	8.5	‡10.0
Shreveport	14.00	16.50	8.5	‡9.0
Knoxville, Tenn.	18.50	20.00	8.5	12.5
Memphis	16.50	18.00	8.5	11.0
Chattanooga	18.00	15.75	8.5	12.0
Nashville	17.50	16.90	8.5	11.5
Bristol	18.75	18.00	8.5	12.0

Essolene at dealer price less 0.5 cent per gallon to undivided dealers.

†Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gal. or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gal. at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 0.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline Tank wag.	Gasoline Incl. tax.	Kero. tank wag.
Texarkana, Ark.	13.5	5.5	7.0
Fort Smith	15.0	5.5	8.0
Little Rock	17.25	8.0	8.0
Muskogee, Okla.	13.0	5.5	7.0
Oklahoma City	11.5	5.5	6.5
Tulsa	12.5	5.5	6.0

Tank wagon represents price to consumers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline Tank wag.	Gasoline Dlr.	Gasoline Incl. tax	Kero. tank wag.
Omaha	17.0	15.9	6.5	9.0
McCook	17.5	14.4	6.5	9.5
Norfolk	17.5	15.4	6.5	9.9
North Platte	17.8	15.0	6.5	10.2
Scottsbluff	18.4	15.5	6.5	10.5

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Texas

	Gasoline Tank wag.	Gasoline Dlr.	Gasoline Incl. tax	Kero. tank wag.
Dallas, Tex.	11.5	15.5	5.5	6.0
Fort Worth	11.5	15.5	5.5	7.0
Houston	12.0	16.0	5.5	8.0
San Antonio	12.5	17.0	5.5	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	16.2
V.M.&P. naphtha	16.5
Cleaners' naphtha	15.5
Stanisol	15.5

*Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Canada

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Gasoline Tank wag.	Gasoline Incl. tax.	Kero. tank wag.
Halifax, N. S.	24.5	10.0	18.0
St. John, N. B.	24.5	10.0	18.0
Montreal, Que.	24.0	8.0	16.5
Toronto, Ont.	24.0	8.0	16.5
Hamilton, Ont.	24.0	8.0	16.5
Winnipeg, Man.	27.0	7.0	21.5
Brandon, Man.	28.0	7.0	22.5
Regina, Sask.	25.0	7.0	20.0
Saskatoon, Sask.	28.0	7.0	23.0
Edmonton, Alta.	25.9	7.0	20.0
Calgary, Alta.	23.0	7.0	18.0
Vancouver, B. C.	21.0	7.0	23.0

Tank-Wagon Changes

Continental Oil Co. reduced regular and third-structure gasoline tank-wagon prices 0.5 cent on July 9 at Cheyenne, Wyo. A cent reduction on both grades of motor fuel was posted by the company at Albuquerque, N. M., July 12.

Standard Oil Co. of Louisiana reduced dealer tank-wagon price on regular gasoline 3.75 cents on July 12 at Chattanooga, Tenn.

Standard Oil Co. of New Jersey reduced tank-wagon fuel-oil prices 0.5 cent on July 2 in the State of Virginia. Effective July 6, Standard of New Jersey lowered the dealer tank-wagon price on kerosene at Baltimore, Md., 0.5 cent. Effective July 2, Standard of New Jersey reduced the tank-wagon price of No. 1 feul oil 0.30 cent and No. 2 and No. 3 fuel oil 0.35 cent per gallon throughout New Jersey.

Standard Oil Co. of Indiana reduced dealer tank-wagon gasoline at Grand Rapids, Mich., 0.2 cent on July 12.

Standard of New Jersey lowered tank-wagon prices for fuel oil 0.5 cent per gallon on July 3 throughout North Carolina.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted.

Prices as of July 23, 1940

The quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils. Octane ratings in Middle West, Mid-Continent, and Southwest are based on A.S.T.M. method of testing.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
72-74 octane (regular)	.04⅝	.04⅝
63-66 octane	.04¼	.04¼
60 octane and below	.03½	.03⅝
60-62 400 grades:		
72-74 octane (regular)	.04⅝	.04⅝
63-66 octane	.04¼	.04¼
60 octane and below	.03½	.03⅝

NORTH TEXAS—

U. S. Motor grades:		
72-74 octane (regular)	.04⅝	.04⅝
63-66 octane	.04¼	.04¼
60 octane and below	.03½	.03⅝
60-62 400	.03⅝	.03⅝

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
72-74 octane (regular)	.05⅛	.05⅝
63-66 octane	.04⅝	.04⅞
60 octane and below	.04¼	.04⅛

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
72-74 octane (regular)		.04⅝
60 octane and below		.04

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
72-74 octane (regular)	.04⅝	.04⅞
63-66 octane	.04⅝	.04⅞
60 octane and below	.04	.04⅛
60-62 400 grades:		
72-74 octane (regular)	.04⅜	.04⅞
63-66 octane	.04⅝	.04⅞
60 octane and below	.04	.04⅛

PENNSYLVANIA (inland refineries)—

74-76 octane (regular)	.06	.06⅛
72-74 octane		.05⅝

CALIFORNIA (domestic movement)—

58-60 400, 65 oct. and higher	.06¼	.07⅛
54-58 U. S. Motor	.05	.06½

EAST COAST (domestic)—

U. S. Motor grades:		
New York (Bayonne)*	.06	.06⅛
Philadelphia	.06	.06⅝
Boston	.05⅝	.06
Baltimore	.06¼	.06½
Charleston, S. C.	.06¼	.06⅝

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery ⅛ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
72-74 octane	.04⅛	.04⅛
70-72 octane	.04	.04⅛
68-70 octane	.03⅞	.04
65-67 octane	.03¾	.04

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.01¼
Grade 18-55	.01⅝	.01⅝

NORTH TEXAS—

Grade 26-70		.01¼
Grade 18-55		.01⅛

CALIFORNIA—

75-85 375-390	.05¼	.05¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.01⅛

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110-flash, 540-550 e.p.	.03½	.03⅝
41-43 gr., 300-320 l.b.p., 110-125 flash, 500-520 e.p.	.03⅝	.03⅝
46-48 gr., 210-230 l.b.p., 480-max., e.p.	.03⅜	.04

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

42-44	.03⅜	.04
41-43	.03¾	.03⅜

NORTH TEXAS—

41-43	.03¾	.03⅜

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.03⅜	.04

ARKANSAS (Ark. and N. La. del.)—

41-43		.04¼

PENNSYLVANIA (inland refineries)—

46	.05	.05⅛
45	.04¾	.04⅝

CHICAGO (Based on Group 3)—

42-44	.04	.04⅛
41-43	.03⅞	.04

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04½	.05½

NEW YORK (Bayonne, N. J.)—

41-43	.051	.053

GULF COAST (domestic)*—

41-43	.04	.04½

*Barge price ⅛ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03½	.03⅝
No. 1 prime white, 38-42	.03¼	.03⅜
No. 1 straw, 38-40	.03¼	.03⅜
No. 2 straw, 32-36	.03¼	.03⅜
No. 3 zero to 10, 28-32	.03⅛	.03¼

NORTH TEXAS—

No. 1 prime white, 38-42		.03½
No. 1 straw, 38-40		.03⅜

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	0.3	.03⅛

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36	.03⅛	.03½

CHICAGO (Based on Group 3)—

Range oil	.03⅝	.03¾
No. 1 prime white, 38-40	.03¼	.03⅝
No. 2 straw, 32-36	.03¼	.03⅜
No. 3, zero to 15, 28-32	.03½	.03¼

NEW YORK (Bayonne, N. J.)—

*No. 1	.051	.053
*No. 2	.044	.047
*No. 4	.044	.047

Barge deliveries ⅛ to ¼ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil, under 35	.02⅝	.02¾
No. 5, low pour point, 18-22	.72½	.77½
No. 6, 15 and above, 8-14	.50	.55

NORTH TEXAS—

U.G.I. gas oil, under 35	.02⅝	.02¾
No. 5, low pour point, 18-22	.72½	.77½
No. 6, 15 and above, 8-14	.50	.55

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.65	.70

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02⅞
No. 5, low pour point, 18-22	.75	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pour point, 10-16	.60	.70
No. 6, 15 and above, 10-16	.45	.55

PENNSYLVANIA (inland refineries)—

36-40		.04

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.10	1.25
24 plus diesel, per bbl.	1.10	1.25
24 plus diesel (bunkers)	1.20	1.35
12-16 (bunkers at tidewater)	.75	.90
10-16 (cargo lots)	.65	.90
12-17 (tank cars)	.60	.75
10-17 (high sulfur)	.50	.65
San Joaquin Valley:		
10-18 (tank cars)	.50	.70
24 plus diesel, per bbl.	1.10	1.25
San Francisco:		
24 plus diesel, per bbl.	1.35	1.40
24 plus diesel (bunkers)	1.40	1.50
10-16 (bunkers)	.80	.85

GULF COAST—

No. 2 fuel	.03¼	.03½
43-47 diesel	.03	.03¼
48-52 diesel	.03¼	.03½
53-57 diesel	.03½	.03¾
58-and-above diesel	.03¾	.04
Diesel bunkers		1.50
Bunker C (bulk cargoes)	.80	.85
Bunker C (bunkers)		.80

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil	.04½	.05
28-30 diesel (lighterage 6¼c per bbl.)		1.80
28-30 diesel (tank cars)	.04½	.05
Bunker C (to ocean-going ships in N. Y. Harbor)	1.25	1.35
Industrial fuel (tank cars)	.035	.038

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

200-210 D, 10-25		.18
150-160 D, 0-10		.14
150-160 D, 10-25		.13½
100-110 D, 0-10		.13½
100-110 D, 10-25		.13
Steam refined:		
600 dark green (untreated)		.07

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour point	.14½	.15
15 pour point	.13½	.14
25 pour point	.14	.14
Steam refined:		
600	.08	.10
650	.10	.12
600 flash	.11	.13
630 flash	.13	.15

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

0-10 pour point:		
150-3		.08
180-3		.09
200-3		.09½
250-3		.10½
280-3		.11
280-4		.10½
300-3½		.11½
350-3½		.12
400-3½		.12½
500-3½		.13
600-3½		.13½
100-2½ paraffin oil, 10-25		.05¾
10-25 pour point:		
200-3		.09
250-3		.10
280-3		.10½
280-4		.10

GULF COAST—

Pale oils:		
100-3	.05½	.05¾
200-3	.07¼	.07½
300-3	.07¾	.08
500-3½	.08½	.09
750-3½	.09	.09½
1,200-3½	.09¾	.10
2,000-4	.10	.10¼
3,000-4	.12¼	.12½
Red oils:		
200-5-6	.07	.07¼
300-5-6	.07½	.07¾
500-5-6	.08¼	.08¾
750	.08¾	.09¼
1,200-5-6	.09¾	.09¾

CALIFORNIA (moving to dom. market)—

Pale oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 400-405 flash:		
Zero pour point		.22½
10 pour point		.21½
15 pour point		.20½
25 pour point	.19	.20
200 vis. at 70° F., 3 color:		
Zero pour point		.24½
10 pour point		.23½
15 pour point		.22½
25 pour point	.21	.22

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale	.03½	.03¾

PENNSYLVANIA (inland refineries)—

122-124 (A.m.p.) w.c. scale	.02¾	.03
124-126 (A.m.p.) w.c. scale	.02¾	.03

NEW YORK—

Wax in bags fully refined:		
125-127 (A.m.p.) wax	.056	.060
128-130 (A.m.p.) wax	.057	.060
130-132 (A.m.p.) wax	.058	.062
133-135 (A.m.p.) wax	.062	.065
135-137 (A.m.p.) wax	.064	.067
Crude scale:		
124-126 (A.m.p.) w.s.	.02¾	.03
124-126 (A.m.p.) y.s.	.02¾	.03
Petrolatum in barrels, carload lots:		
Dark green	.02250	.02625
Amber	.02375	.02875
Extra amber	.02625	.03000
Lily white	.04375	.05000
Snow white	.05125	.06000
Cream	.03625	.04125

Export Prices

GASOLINE

GULF COAST—

U. S. Motor		.04
60-62 400	.04	.04⅛
61-63 390	.04	.04⅛
64-66 375	.04	.04⅛

LOS ANGELES—

U. S. Motor grades:		
Above 69 octane	.06¼	.06½
65-69 octane	.05⅝	.06⅛
60-65 octane	.05¼	.05⅝

KEROSENE

GULF COAST—

41-43 water white	.04	.04⅛

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.b. in bbl.)—

Cylinder stocks:		
600 S.R. unfiltered		.16
630 S.R. unfiltered		.18
600 flash, S.R.		.19
650 flash, S.R.		.21
Bright stock:		
Light, 25 pour point		.20

NEUTRAL OIL

200-3 color		.27
150-3 color		.25

PARAFFIN WAX

NEW YORK (prices per pound)—

123-125 A.m.p.		.05⅝
125-127 A.m.p.		.06
128-130 A.m.p.		.06¼
133-135 A.m.p.		.06⅝
135-137 A.m.p.		.07
Crude scale:		
124-126 w.s.	.02⅝	.02½
124-126 y.s.	.02⅝	.02½

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4,000′ of 8¼"—32 lb. lapweld casing.
3,200′ of 7"—24 lb. lapweld casing.
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FOR SALE
Following used lapweld casing:
475′—15½"—70#
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All of above casing in good condition
Also have for sale 1—45C Star and 1—49C Star Drilling machines in exceptionally good condition, completely equipped.
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Address Box K-701
The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—Small Tool Joint Specialty Business manufacturing article used everywhere. For further details write Box K-711, The Oil and Gas Journal, Tulsa, Oklahoma.

FOR SALE—Two steam driven 24x12½ x24 Dow surge type horizontal duplex double acting hot oil pumps. Cities Service Oil Co., Bartlesville, Okla.

STORAGE tanks, pumps, compressors, Griscom-Russell bentube sections, condensers, stills, portable steel buildings, pipe and fittings direct from gasoline plants now being dismantled. Box K-677, The Oil and Gas Journal, Tulsa, Oklahoma.

TRACTORS
Caterpillars, crawler type, size "35," $375; size "65" with nigger-head winch $750; Caterpillar RD8 with bulldozer $2000; Allis-Chalmers Model L with bulldozer $1750. Guaranteed, slightly used. O. C. Evans, Mt. Sterling, Ky.

FOR SALE—Western Kansas, 40 H.P. O.C.S. "Bat" pumping units and 40 H.P. vertical Webber oil or gas engines. Cities Service Oil Company, Bartlesville, Oklahoma.

FOR SALE: Star #28 beam steam machine lines and tools complete. Box 592, Emporia, Kansas.

FOR SALE
One gasoline drilling rig with two 85 H.P. Waukesha motors and unitized draw works complete.
10,000 Ft. 2½" seamless tubing, used in flowing wells only.
10,000 Ft. 7" O.D. 26# seamless casing, once run.
15,000 Ft. 4½" O.D. seamless drill pipe equipped with both regular and full hole tool joints.
In addition to the above we have 20,000 Ft. screw line pipe in Oklahoma; also drilling rig capable of drilling to 6500 feet, complete stock of line pipe, casing, drilling and pumping equipment.
Wire, Write or Phone for Prices.
Louisiana Iron & Supply Co.
Shreveport, La.

New York Markets

(Continued from Page 219)

cents; 630 flash, 13 cents. Export—25-pour bright stock, 20 cents; 600 steam refined, 16 cents; 650 steam refined, 18 cents; 600 flash, 19 cents; and 630 flash, 20 cents.

Lack of export business was cited as the cause of the latest decline in Pennsylvania lubricating-oil prices. This was substantiated to a degree by reports of New York clearances last week that continued to show grain-laden steamers leaving for European ports with deck cargoes of from 68 to 200 bbl. of lubricating oils. However, there was a report current that additional export business was assured next month and that there were definite indications of improvement in export buying.

While bright and steam-refined stocks continued their downward trend last week, Pennsylvania neutrals held their position and this market was described as "looking pretty good." The fact that Pennsylvania prices remain comparatively high in comparison to pre-war prices is due to the fact that very little if any of this product goes into export. Virtually all Pennsylvania viscous neutral goes into the manufacture of high-grade motor oils and Pennsylvania refiners have expressed themselves as entirely satisfied with the volume of their branded motor-oil trade.

Gulf Coast Markets

(Continued from Page 219)

tic movement, were reported. These could not definitely be verified.

Other gasolines continued inactive and markets did not reflect the buying taking place in the aviation grades. All quotations were unchanged with the pressure of excessive stocks forestalling any stiffening. Movement of the aviation gasoline will provide a little storage relief to several refiners but not enough, considering the overflowing storage conditions in the district, to be generally felt.

It is reported that increasing quantities of Mexican gasoline, cut off from its former Italian outlets, are being brought into the Texas coastal district, particularly the Houston area, and are being made available at prices under the prevailing quotations for local gasolines. Although of lower grade, its competition is beginning to be felt.

Little change was evident in the position of other Gulf Coast refined products during the week. Bunker C and other heavier fuel oils continued firm in price although demand lacked life. The majority of suppliers are in fair to good position in respect to the heavy fuels and so far do not have much occasion to offer concessions to business. Quotations on Bunker C fuel seem to be pegged at a low of 80 cents, and although several suppliers are asking as high as 85 cents there is little new business much above the low quotation.

Light fuels and burning oils are barely holding at the more or less nominal quotations that have existed for the past several weeks. Little interest is being displayed in any of these products either by buyers or sellers.

CRUDE-OIL PRICES IN REPRESENTATIVE FIELDS

Complete crude-price schedules are now being published in the first issue of each month. The last complete schedule was published in the July 4 issue. All changes in crude-oil-price schedules will be published completely in the first issues following the announcement of the changes. Following are representative crude-price schedules in barrels (42 gal.):

East Texas	$1.10
Conroe	1.27
Tepetate, Louisiana	1.03
Smackover, Arkansas, heavy	.73
Illinois basin	1.05
Pecos County, Texas	.78
Lance Creek, Wyoming	.77
Bradford, Pennsylvania	2.25

Gravity Schedules

Top prices include all gravities above grades designated, and low prices include all gravities below grades designated:

	Signal Hill, California*	Oklahoma, Kansas	Gulf Coast, Texas
14-14.9	$0.65	....	....
15-15.9	.65	....	....
16-16.9	.65	....	....
17-17.9	.65	....	....
18-18.9	.65	....	....
19-19.9	.69	....	$0.86
20-20.9	.73	$0.70	.88
21-21.9	.78	.72	.90
22-22.9	.82	.74	.92
23-23.9	.86	.76	.94
24-24.9	.90	.78	.96
25-25.9	.95	.80	.98
26-26.9	.99	.82	1.00
27-27.9	1.03	.84	1.02
28-28.9	1.07	.86	1.04
29-29.9	1.10	.88	1.06
30-30.9	1.14	.90	1.08
31-31.9	....	.92	1.10
32-32.9	....	.94	1.12
33-33.9	....	.96	1.14
34-34.9	....	.98	1.16
35-35.9	....	1.00	1.18
36-36.9	....	1.02	1.20
37-37.9	....	1.04	1.22
38-38.9	....	1.06	1.24
39-39.9	....	1.08	1.26
40-40.9	....	1.10	1.28

*Effective Feb. 1, 1940.

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